Note inst. in remarks column

Test scheet : 05.05.94 Edition replaces : 07.84 Calibrating oil : ISO-4113

: VE6/11F1150R172 Injection pump Type number : 0 460 416 032

Customer Part-No. :

Customer-specific information

Customer

Engine

: WD 611.87

Power

KW: 81

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 000

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 800 Speed Charge press. hPa: 800 Setting value mm: 3.50...3.90

Supply-pump pressure

1/min: 800 Speed Charge press hPa: 800

Setting value bar: 5.40...6.00

Full-load del. with charge press.:

Speed 1/min: 800 Charge press. hPa: 800

Del. quantity cm3/ 1000s.: 70.00...71.00 Dispersion cm3/: 3.5

1000s.: (3.5)

Full-load del. w/out charge press.:

Speed 1/min: 500 Del. quantity cm3/

1000s.: 53.50...54.50

Low-idle speed regulation

Speed 1/min: 250

Del. quantity cm3/ 1000S.: 16.00...20.00

Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 1200 Charge press hPa: 800

Del. quantity cm3/

1000s.: 38.00...42.00

Start:

1/min: 100

Del. quantity cm3/: 65.00...125.00

1000s.: 65.00 mind

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1130 Charge press hPa: 800

mm: 6.80...7.60 TD travel mm: (6.50...7.90)

3rd speed 1/min: 800 Charge press hPa: 800

TD travel mm: 3.50...3.90 mm: (3.00...4.40)

1/min: 600 4th speed Charge press hPa: 800

mm: 1.40...2.20 TD travel mm: (1.10...2.50)

Supply-pump pressure characteristic:

1/min: 1130 1st speed 1st speed 1/mir: 1130 Charge press. hPa: 800 Del. quantity cm3/: 0.00...3.00 Supply-pump 1000s.: (0.00...3.00) bar: 6.80...7.40 pressure 2nd speed 1/min: 800 Idle delivery: Charge press. hPa: 800 Supply-pump 1/min: 250 1st speed pressure Del. quantity cm3/: 16.00...20.00 1000s.: (14.00...22.00) bar: 5.40...6.00 3rd speed 1/min: 600 Charge press. hPa: 800 cm3/: 3.5 Dispersion 1000s.: (3.5) 1/min: 380 Supply-pump bar: 4.40...5.00 pressure 2nd speed Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) 3rd speed 1/min: 330 Del. quantity cm3/: 2.00...10.00 Overlow quantity at overflow valve: 1st speed 1/min: 500 : 41.70...83.40 cm3/10s: (26.70...98.40) 1/min: 1130 Overflow 1000s.: (2.00...10.00) quantity 2nd speed Automatic starting fuel delivery: Charge press. hPa: 800 : 55.60...139.00 Overflow 1st speed 1/min: 170 Del. quantity cm3/: 65.00...125.00 1000s.: (65.00...125.00) cm3/10s: (40.60...154.00) quantity Delivery-quant. and breakaway char.: 2nd speed 1/min: 250
Del. quantity cm3/: 26.00...50.00
1000s.: (26.00...50.00) 1nd speed 1/min: 500 Charge-air pressure-setting 4th speed 1/min: 100
Del. quantity cm3/: 65.00...125.00
1000S.: (65.00...125.00) point hPa: 150 LDA-stroke mm: 4.0 Del. quantity cm3/: 61.50...62.50 1000s.: (59.00...65.00) 1/min: 1310 2nd speed Mounting and assembly dimensions: Charge press. hPa: 800

Del. quantity cm3/: 0.00...3.00

1000S.: (0.00...3.00)

3rd speed 1/min: 1250 Designation K mm: -KF mm: 5.2...5.5 Charge press. hPa: 800 MS mm: 1.3...1.5 Del. quantity cm3/: 10.00...26.00 1000s.: (10.00...26.00) SVS max. mm: 4.0 LDA stroke mm: 4.0 1/min: 1200 mm: 37.2...39.2 mm: 48.2...56.2 5th speed Ya Charge press. hPa: 800
Del. quantity cm3/: 38.00...42.00
1000s.: (34.00...46.00)
9th speed 1/min: 1130 Yb Remarks: Charge press. hPa: 800 pel. quantity cm3/: 72.00...76.00 1000s.: (71.00...77.00) Operate control lever after each manifold-pressure compensator pressure 12th speed 1/min: 800 change. Charge press. hPa: 800 Del. quyntity cm3/: 70.00...71.00 * Correction at adjusting nut 1000s.: (68.00...73.00) 1/min: 500 18th speed Charge press. hPa: -Del. quantity cm3/: 53.50...54.50 1000s.: (51.50...56.50) Mech. shutoff: Mech. Abstellung:

Note inst. in remarks column

Test scheet

Edition : 05.05.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/11F1125R546 Type number : 0 460 416 075

Customer Part-No. :

Customer-specific information

"DI" Customer : IVECO-FIAT

Engine : 8065.25.230

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-cil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00

x Length mm: 450

Start of delivery Prestroke

mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 800 Charge press. hPa: 1000

Setting value mm: 1.10...1.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 800 Charge press hPa: 1000

Setting value bar: 6.60...7.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 650 Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 78.50...79.50

Shutoff

electromagnet Volt: 12 cm3/: 3.5Dispersion

1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/ 1000s.: 48.00...49.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 300

Del. quantity cm3/

1000s : 7.00...11.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 6.0

1000s.: (6.0)

Full-load speed regulation

Speed 1/min: 1170 Charge press hPa: 1000

Del. quantity cm3/ 1000s.: 27.00...33.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 80.00...140.00

mind 1000s.: 80.00

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 900 Charge press hPa: 1000 TD travel mm: 2.002.8 mm: (1.503.		Charge-air pressure- point hPa: LDA-stroke mm: Shutoff	360
Shutoff electromagnet Volt: 12 3rd speed 1/min: 800 Charge press hPa: 1000 TD travel mm: 1.101.5 mm: (0.402.		2nd speed 1/min: Charge press. hPa:	57.5058.50 (53.0063.00) 1280
Shutoff electromagnet Volt: 12	.207	Shutoff electromagnet Volt: Del. quantity cm3/:	0.003.00
Sth speed 1/min: 1050 Charge press. hPa: 1000 TD travel mm: 2.903.7	70	5th speed 1/min: Charge press. hPa:	
mm: (2.404. Shutoff	.20)	Shutoff	40
electromagnet Volt: 12	Ŧ	electromagnet Volt: Del. quantity cm3/:	27.0033.00 (24.0036.00)
Supply-pump pressure character	ristic:	8th speed 1/min: Charge press. hPa:	1125
1st speed 1/min: 500	1	Shutoff	
Charge press. hPa: 1000	+	electromagnet Volt:	12
Supply-pump	+	Del. quantity cm3/:	
pressure bar: 5.105.7	⁷⁰ +		(46.0066.00)
Shutoff	†	9th speed 1/min:	
electromagnet Volt: 12	†	Charge press. hPa:	1000
2nd speed 1/min: 800	1	Shutoff	40
Charge press. hPa: 1000 Supply-pump	<u> </u>	electromagnet Volt: Del. quantity cm3/:	65.5068.50
pressure bar: 6.607.2 Shutoff		1000S.: 12th speed 1/min:	(63.5070.50)
electromagnet Volt: 12	Ţ	Charge press. hPa:	
3rd speed 1/min: 1050	1	Shutoff	1000
Charge press. hPa: 1000	1	electromagnet Volt:	12
Supply-pump	1	Del. quyntity cm3/:	
pressure bar: 7.708.3	30 +	1000s.:	(75.5082.50)
Shutoff	+	18th speed 1/min:	
electromagnet Volt: 12	‡	Charge press. hPa: Shutoff	
Overlow quantity at overflow v	alve: +	electromagnet Volt: Del. quantity cm3/:	48.0049.00
1st speed 1/min: 500	+		(45.0052.00)
Charge press. hPa: 1000 Shutoff	‡	20th speed 1/min: Charge press. hPa:	
electromagnet Volt: 12		Shutoff	
Overflow : 41.7083		electromagnet Volt:	
quantity cm3/10s: (26.709	(8.40)	Del. quantity cm3/:	81.0085.00
2nd speed 1/min: 1050 Charge press. hPa: 1000	Ť	1000\$.:	(79.5086.50)
Shutoff	T	Mach shutaff.	
electromagnet Volt: 12	Ī	Mech. shutoff: Mech. Abstellung:	
Overflow : 55.6013	ro nn I	mech. Abstettung.	
quantity cm3/10s: (40.601		1st speed 1/min:	1050
Delivery-quant. and breakaway	+	Charge press. hPa: Del. quantity cm3/:	1000
•	<u> </u>	1000s.:	(0.003.00)
1nd speed 1/min: 575	+	electromagnet voit:	12
	•		

Electr. shutoff:

1st speed 1/min: 300

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1/min: 300 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 7.00...11.00

1000S.: (4.00...14.00)

cm3/: 6.0Dispersion

1000s.: (6.0) 1/min: 375 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 150

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: MIND.95 1000s.: -

1/min: 300 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 30.00...60.00 1000s.: (30.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 80.00...140.00

1000s.: (80.00...140.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 K

KF mm: 5.4

mm: 2.0...2.4 mm: 34.9...36.9 mm: 38.3...43.5 MS

Ya Yb

Remarks:

Yb = Distance between VE flange and speed-control lever in rated speed Measurement point = edge of control

lever on distributor-head end

Operate control lever after each manifold pressure compensator pressure change.

* Correction at adjusting nut

Note inst. in remarks column

Test scheet : VMA

Edition : 05.05.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/11F1150R583 : 0 460 416 077 Type number

Customer Part-No. :

Customer-specific information

Customer : VM

Engine : D706 LT

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 110

Opening

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 450

Start of delivery

Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1200 Speed Charge press. hPa: 1200

Setting value mm: 2.40...2.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200

Charge press hPa: 1200 Setting value bar: 7.10...7.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1000 Charge press. hPa: 1200

Del. quantity cm3/

1000s.: 76.00...77.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5

1000s.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 600

Del. quantity cm3/ 1000s.: 55.50...56.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 300

Del. quantity cm3/ 1000s.: 7.00...11.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1500 Charge press hPa: 1200

Del. quantity cm3/ 1000s.: 48.00...52.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 40.00...80.00 mind 1000s.: 40.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1200 Speed Charge press hPa: -

Injqty. cm3/	+	Charge press. hPa:	1200
difference 1000s.: -15.021.0 #	1	Shutoff	
Shutoff	1	electromagnet Volt:	12
electromagnet Volt: 12	1	Overflow :	102 70 147 20
TD-travel dif.measurement	1	quantity cm3/10s:	(87 70 162 20)
correttore anticipo iniezione (SV)	1	2nd speed 1/min:	
1. Speed 1/min: 1200	1	Charge press. hPa:	
Charge press hPa: -	L	Shutoff	1200
TD-travel	L	electromagnet Volt:	12
difference mm: -0.91.1 #	T	Overflow :	07 20 400 50
Shutoff	T	overitow == 7/10a	(92.20 405.50)
	T	quantity cm3/10s:	(02.20195.50)
electromagnet Volt: 12	T	Daldyson, mask and	handler along
Transation name that amount the trans	†	Delivery-quant. and	preakaway char.:
Inspection-pump test specifications	+		
Test specifications in parentheses	+	4 1 1 4/1	440
Timing days to the action to the	+	1nd speed 1/min:	
Timing-device characteristic:	†	Charge-air pressure	-setting
4	+	point hPa:	
1st speed	+	LDA-stroke mm:	-
Charge press hPa: 1200	+	Shutoff	
TD travel mm: 2.703.50	+	electromagnet Volt:	12
mm: (2.204.00)	+	Del. quantity cm3/:	75.0076.00
electromagnet Volt: 12	+		(72.5078.50)
2nd speed 1/min: 1200	+	2nd speed 1/min:	1780
Charge press hPa: 1200	+	Charge press. hPa:	1200
TD travel mm: 2.402.80	+	Shutoff	
mm: (1.903.30)	+	electromagnet Volt:	12
Shutoff	+	Del. quantity cm3/:	0.003.00
electromagnet Volt: 12	+	1000s.:	-
3rd speed 1/min: 1000	+	3rd speed 1/min:	
Charge press hPa: 1200	+	Charge press. hPa:	
TD travel mm: 1.302.10	+	Shutoff	.255
mm: (0.802.60)	1	electromagnet Volt:	12
Shutoff	1	Del. quantity cm3/:	22 00 38 00
electromagnet Volt: 12	1	10005	(20.0040.00)
	1	4th speed 1/min:	
Supply-pump pressure characteristic:	1	Charge press. hPa:	
topped problem of the doct to the	1	Shutoff	1200
1st speed 1/min: 500	1	electromagnet Volt:	12
Charge press. hPa: 1200	1	Del. quantity cm3/:	
Supply-pump	1		(44.0856.00)
pressure bar: 4.705.30	\perp	5th speed 1/min:	
Shutoff	I	Charge press. hPa:	
electromagnet Volt: 12	Ι	Shutoff	1200
2nd speed 1/min: 1200	Ι	electromagnet Volt:	12
Charge press. hPa: 1200	Ι	Del. quantity cm3/:	
Supply-pump	T		(72.5079.50)
pressure bar: 7.107.70	T		
Shutoff	T	6th speed 1/min:	
	T	Charge press. hPa:	1200
electromagnet Volt: 12	T	Shutoff	10
3rd speed 1/min: 1300	T	electromagnet Volt:	
Charge press. hPa: 1200	+	Del. quantity cm3/:	
Supply-pump	T		(73.5079.50)
pressure bar: 7.508.10	†	7th speed 1/min:	
Shutoff	†	Charge press. hPa:	1200
electromagnet Volt: 12	†	Shutoff	40
A contact at contact and a contact	T	electromagnet Volt:	7/ 50 07 50
Overlow quantity at overflow valve:	†	Del. quantity cm3/:	
1et energy 4/-1: 500	†		(75.0085.00)
1st speed 1/min: 500	+	8th speed 1/min:	600

Charge press. hPa: 1200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.00...70.00 1000s.: (30.00...70.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 86.00...90.00 1000s.: (84.50...91.50) 9th speed 1/min: 600 2nd speed 1/min: 200 Charge press. hPa: -Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00) electromagnet Volt: 12 Del. quantity cm3/: 55.50...56.50 1000s.: (53.00...59.00) 1/min: 100 4th speed Mech. shutoff: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...80.00 Electr. shutoff: 1000s.: (40.00...80.00) 1st speed 1/min: 300 Del. quantity cm3/: 0.00...3.00 Shutoff electromagnet: 1000s.: (0.00...3.00) Shutoff Cut-in electromagnet volt: min voltage : 10.0 Rated voltage : 12.0 Idle delivery: Mounting and assembly dimensions: 1st speed 1/min: 300 Shutoff Designation electromagnet Volt: 12 mm: 3.2...3.4 Del. quantity cm3/: 7.00...11.00 KF mm: KOT 1000s.: (4.00...14.00) MS1 mm: 1.0...1.3 cm3/: 5.0 mm: 38.6...40.6 mm: 60.5...71.5 Dispersion Ya 1000s.: (5.0) Yb 1/min: 400 2nd speed Shutoff Remarks: electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Ya = Distance between VE flange and speed-control lever in idle Load-dependent start of delivery: position Inj.-qty.dif.measurement: Measurement point = edge of control lever on drive end 1st speed 1/min: 1200 Charge press. hPa: Inj.-qty. cm3/ : -11.0.-13.0 "
difference 1000S.: -Yb = Distance between VE flange and speed-control lever in rated speed Shutoff position electromagnet Volt: 12 Measurement point = edge of control lever on distributor-head end SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1200 Charge press. hPa: -Supply pump-Operate control lever after each pressure : -0.1..-0.3 " manifold-pressure compensator pressure difference bar: change. Shutoff electromagnet Volt: 12 * Correction at adjusting nut Automatic starting fuel delivery: 1st speed 1/min: 500

Note inst. in remarks column

Test scheet

: 05.05.94 Edition

replaces

Calibrating oil : ISO-4113

Irrjection purp : VE6/11F1150R586 : 0 460 416 078

Type number Customer Part-No. :

Customer-specific information Customer : IVECO-FIAT

Engine : 8065,05,240

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Openina

Pressure bar: 250.00...253.00

Per forated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 800

Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 800

Setting value bar: 6.20...6.80

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 700

Del. quantity cm3/ 1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000s.: (4.0)

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (4.0)

Full-load speed regulation

1/min: 1250 Speed

Del. quantity cm3/

1000s.: 22.00...28.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...130.00

1000s.: 70.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 800

TD travel mm: 2.20...2.60 mm: (1.70...3.10)

Shutoff

electromagnet Volt: 12 4th speed 1/min: 700

mm: 1.00...1.80 TD travel mm: (0.70...2.10)

Shutoff

electromagnet Volt: 12 5th speed 1/min: 1150

mm: 2.90...3.70 TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 61.00...64.00 1000s.: (59.00...66.00) mm: (2.60...4.00) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 500 Supply-pump pressure bar: 4.70...5.30 Shutoff electromagnet Volt: 12 2nd speed 1/min: 800 Shutoff electromagnet volt: 12 Supply-pump pressure bar: 6.20...6.80 Electr. shutoff: Shutoff electromagnet Volt: 12 1/min: 1150 4th speed Supply-pump bar: 7.70...8.30 pressure Shutoff Shutoff electromagnet volt: electromagnet Volt: 12 Idle delivery: Overlow quantity at overflow valve: 1st speed 1/min: 300 1/min: 500 1st speed Shutoff electromagnet Volt: 12
Del. quantity cm3/: 10.00...14.00
1000s.: (8.00...16.00)
Dispersion cm3/: 3.5 Shutoff electromagnet Volt: 12 : 41.70...86.10 Overflow cm3/10s: (26.70...101.10) 1/min: 1150 quantity 2nd speed 1000s.: (4.0) Shutoff 1/min: 400 2nd speed electromagnet Volt: 12 Shutoff Overflow : 55.60...139.00 electromagnet Volt: 12 cm3/10s: (40.60...154.00) Del. quantity cm3/: 0.00...3.00 quantity 1000s.: (0.00...3.00) Delivery-quant. and breakaway char.: Automatic starting fuel delivery: 1/min: 1350 2nd speed 1st speed 1/min: 150 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.00...135.00 1000S.: (75.00...135.00) electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 1250 5th speed Shutoff 2nd speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...75.00 1000s.: (45.00...75.00) 9th speed Shutoff 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00) Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 64.50...65.50 Shutoff electromagnet: 1000s.: (61.00...67.00) 1/min: 500

A10

20th speed

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4 KF mm: 5.4 MS mm: 1.1...1.3 Ya mm: 36.5...38.5 Yb mm: 43.7...48.9

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in reports column

Test scheet

: 05.05.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE3/12F1125R531 Type number : 0 460 423 001

Customer Part-No. :

Customer-specific information Customer : PERKINS

: 3.152 R49 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 109

Opening

Pressure bar: 207.00...210.00

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length mm: 840

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.04)

Injection pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 950 Speed

Setting value mm: 0.80...1.20

Supply-pump pressure

1/min: 950

Setting value bar: 6.30...6.90

Full-load del. w/out charge press.:

1/min: 700

Del. quantity cm3/

1000s.: 65.50...66.50

Dispersion cm3/: 3.5

1000s.: (3.5)

Low-idle speed regulation

1/min: 300

Del. quantity cm3/

1000s.: 13.00...17.00

Del. quantity cm3/: 3.0 1000S: (3.0)

Full-load speed regulation

1/min: 1250 Speed

Del. quantity cm3/

1000s.: 17.00...23.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...120.00 mind 1000S.: 60.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1125

mm: 1.30...2.10 TD travel

mm: (1.00...2.40)

3rd speed 1/min: 900

TD travel mm: 0.10...0.90

mm: (0.00...1.20)

4th speed 1/min: 950

TD travel mm: 0.80...1.20

mm: (0.30...1.70)

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 4.00...4.60 1/min: 950 pressure

2nd speed

Supply-pump

pressure bar: 6.30...6.90

3rd speed 1/min: 1125

Supply-pump

bar: 7.10...7.70 pressure

Overlow quantity at overflow valve:

1st speed 1/min: 700 Overflow : 41.70...83.40 quantity cm3/10s: (26.70...98.40) 2nd speed 1/min: 1125 Overflow : 55.60...139.00 cm3/10s: (40.60...154.00) quantity Delivery-quant. and breakaway char .: 1/min: 1300 1nd speed Del. quantity cm3/: 0.00...3.00 1000s.: -2nd speed 1/min: 1250
Del. quantity cm3/: 17.00...23.00
1000S.: (12.00...28.00)
3rd speed 1/min: 1220
Del. quantity cm3/: 45.00...65.00 1000s.: -4th speed 1/min: 1125
Del. quantity cm3/: 58.00...62.00
1000s.: (56.50...63.50) 1/min: 700 5th speed Del. quantity cm3/: 65.50...66.50 1000s.: (63.00...69.00) 1/min: 500 6th speed Del. quantity cm3/: 64.50...68.50 1000s.: (63.00...70.00) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1125 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1000s.: (11.0...19.0) cm3/: 3.0Dispersion 1000s.: (3.0) 1/min: 325 2nd speed Del. quantity cm3/: 6.00...14.0 1000s.: (5.00...15.0) ord speed 1/min: 375

Del. quantity cm3/: 0.00...3.00

1000s.: -Automatic starting fuel delivery: 1st speed 1/min: 180 Del. quantity cm3/: 60.00...120.00 1000s.: (60.00...120.00)

4th speed 1/min: 100 Del. quantity cm3/: 60.00...120.00 1000s.: (60.00...120.00) Mounting and assembly dimensions: Designation mm: -KF mm: KOT MS mm: 0.7...0.9 XK mm: 37.2...39.2 mm: 52.1...60.1 XL Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : MWM

Edition : 05.05.94

replaces

Calibrating oil : ISO-4113

: VE3/12F1125R532 Injection pump Type number : 0 460 423 002

Customer Part-No. :

Customer-specific information

Customer : MWM

Engine : TD 226-B3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 110

Opening

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length mm: 840

Start of delivery Prestroke mm: -

(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 800 Speed

Setting value mm: 1.60...2.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 800

Setting value bar: 6.70...7.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 900

Del. quantity cm3/

1000s.: 85.50...86.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0

1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/ 1000s.: 21.00...27.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (6.5)

Full-load speed regulation

1/min: 1170

Del. quantity cm3/ 1000s.: 52.00...58.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 109.0...111.0

1000s.: 102.0 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 900

TD travel mm: 2.20...3.00

mm: (1.90...3.30)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 800

mm: 1.60...2.00 TD travel mm: (1.10...2.50)

Shutoff

electromagnet Volt: 12 4th speed 1/min: 700

mm: 0.70...1.50 TD travel Shutoff electromagnet Volt: 12
Del. quantity cm3/: 79.50...82.50
1000S.: (78.00...84.00)
6th speed 1/min: 1000 mm: (0.40...1.80) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 81.50...84.50 1000s.: (80.00...86.00) 7th speed 1/min: 900 1/min: 550 1st speed Supply-pump bar: 5.60...6.20 pressure 7th speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.5...86.5 1000s.: (83.5...88.5) electromagnet Volt: 12 2nd speed 1/min: 800 Supply-pump bar: 6.70...7.30 pressure 8th speed 1/min: 550 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.0...91.0 1000s.: (84.0...92.0) electromagnet Volt: 12 3rd speed 1/min: 1100 Supply-pump pressure bar: 7.80...8.40 Shutoff Mech. shutoff: Mech. Abstelluna: electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 550 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 12 electromagnet volt: 12 : 102.7...147.2 Overflow cm3/10s: (87.70...162.2) quantity Electr. shutoff: 1/min: 1100 2nd speed Shutoff 1st speed 1/min: 350 Del. quantity cm3/: 0.0...3.0 electromagnet Volt: 12 : 97.20...180.50 cm3/10s: (82.20...195.50) Overflow 1000s.: quantity Shutoff electromagnet volt: -Delivery-quant. and breakaway char.: Idle delivery: 1/min: 1280 1nd speed Shutoff 1000s.: (17.5...30.5) cm3/: 3.5 1000s.: (6.5) electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: -Dispersion 2nd speed 1/min: 1240 2nd speed 1/min: 450 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 Del. quantity cm3/: 0.0...15.0 1000s.: -1000s.: -1/min: 1190 3rd speed Del. quantity cm3/: 0.00...3.00 Shutoff 1000s.: electromagnet Volt: 12 Del. quantity cm3/: 15.00...45.00 Automatic starting fuel delivery: 1000s.: -1/min: 1170 4th speed 1/min: 250 1st speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 52.00...58.00 1000s.: (46.50...63.50) electromagnet Volt: 12 Del. quantity cm3/: 120.0...160.00 1000s.: (120.0...160.00) 5th speed 1/min: 1100

2nd speed 1/min: 350 Shutoff electromagnet Volt: 12

Del. quantity cm3/: 85.00...135.0 1000s.: (85.00...135.0)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 109.0...111.0

1000s.: (109.0...111.0)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

mn: 3.5...3.7 K KF mm: KOT MS1 mm: 1.0...1.3 XK mm: 41.4...45.4 mm: 37.0...43.0 XL

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control Lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Note inst. in remarks column

Test scheet : CUM 3,9 D1 Edition : 28.04.94 replaces : 16.07.91 Calibrating oil : ISO-4113

Injection pump : VE4/12F1050R230-3 Type number : D 460 424 033

Customer Part-No. :

Customer-specific information

Customer

Engine : 4 BTA-390 IND

KW: 79 Power 1/min: 2100 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina .

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.55

mm: +-0.04(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel

Speed 1/min: 750

Charge press. hPa: 1000 Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 750 Speed Charge press hPa: 1000 Setting value bar: 5.00...5.60

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 900 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 83.00...84.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/ 1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/ 1000S.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1100 Charge press hPa: 1000 Del. quantity cm3/

1000s.: 59.00...65.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...120.00

1000s.: 60.00

Shutoff Shutoff electromagnet Volt: 12 Overflow : 55.60...139.00 electromagnet Volt: 12 Inspection-pump test specifications Test specifications in parentheses cm3/10s: (40.60...154.00) quantity Delivery-quant. and breakaway char.: Timing-device characteristic: 2nd speed 1/min: 1050 1nd speed 1/min: 700* Charge press hPa: 1000 Charge-air pressure-setting mm: 4.70...5.50 TD travel hPa: 350 mm: (4.40...5.80) mm: 6,8 LDA-stroke Shutoff Shutoff electromagnet Volt: 12
Del. quantity cm3/: 79.50...80.50
1000s.: (76.00...84.00)
2nd speed 1/min: 1120 electromagnet Volt: 12 1/min: 750 hPa: 1000 mm: 3.40...3.80 3rd speed Charge press TD travel mm: (2.90...4.30) Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 20.00...50.00 1000s.: (20.00...50.00) 1/min: 500 4th speed Charge press hPa: 1000 tin speed 1/min: 1180 Charge press. hPa: 1000 Shutoff TD travel mm: 1.70...2.50 mm: (1.40...2.80) Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 mm: 0.00...6.40 TD travel mm: (0.00...1.00) 1000s.: (0.00...3.00) 1/min: 1100 5th speed Supply-pump pressure characteristic: Charge press. hPa: 1000 Shutoff 1st speed 1/min: 500 electromagnet Volt: 12 Del. quantity cm3/: 59.00...65.00 1000s.: (56.00...68.00) 9th speed 1/min: 1050 Charge press. hPa: 1000 Supply-pump bar: 3.90...4.50 pressure Shutoff Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 3rd speed 1/min: 750 electromagnet Volt: 12 Del. quantity cm3/: 76.50...79.50 Charge press. hPa: 1000 Supply-pump 1000s.: (75.00...81.00) pressure bar: 5.00...5.60 1/min: 900 12th speed Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12
Del. quyntity cm3/: 83.00...84.00
1000S.: (80.50...86.50)
18th speed 1/min: 500 1/min: 1050 4th speed Charge press. hPa: 1000 Supply-pump bar: 6.30...6.90 pressure Shutoff Charge press. hPa: -Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 63.50...64.50 Overlow quantity at overflow valve: 1000s.: (60.00...68.00) 1st speed 1/min: 500 Charge press. hPa: -Mech. shutoff: Shutoff Mech. Abstellung: electromagnet Volt: 12 : 41.70...83.40 Overflow cm3/10s: (26.70...98.40) quantity 1/min: 1050 2nd speed 1000s.: (0.00...3.00)

Charge press. hPa: 1000

Shutoff

electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 375

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 8.00...14.00 1000s.: (6.00...16.00) cm3/: 5.5 1000s.: (7.0)

Dispersion

2nd speed 1/min: 450

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...4.00

1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1/min: 130 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...120.00

1000s.: (60.00...120.00)

2nd speed 1/min: 230

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 10.00...50.00 1000s.: (10.00...50.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...120.00

1000s.: (60.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -

mm: 5,1...5,4 mm: 1,1..1,35 mm: 2,2 KF MS

SVS max. LDA stroke mm: 6.8

A19

XK XL

mm: 20.2...22.2 mm: 11.9...15.3

Remarks:

: C.D.C. # 3 909 593

Operate control lever after each

manifold-pressure compensator pressure

change.

* Correction at adjusting nut

Note inst. in remarks column

Test scheet : PER

Edition : 05.05.94 replaces : 15.06.92 Calibrating oil : ISO-4113

: VE4/12F1300R280 Injection pump Type number : 0 460 424 037

Customer—specific information Customer : PERKINS

Engine : T4.40 LKW

TEST BENCH REQUIREMENTS

Calibrating-oil return temb.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

Pressure bar: 172.00...175.00

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 950 Charge press. hPa: 1000

Setting value mm: 1.80...2.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 950 Speed Charge press hPa: 1000

Setting value bar: 4.60...5.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1000 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 93.00...94.00

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion

1000s.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/

1000s.: 84.50...85.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 300

Del. quantity cm3/

1000s.: 22.00...26.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1430 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 47.00...53.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 95.00...145.00

mind 1000s.: 95.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1300 hPa: 1000 Charge press

mm: 2.00...2.80 TD travel mm: (1.70...3.10)

electromagnet Volt: 12

2nd speed 1/min: 950

	1000	+	Shutoff	
TD travel mm:		+	electromagnet Volt:	
Shutoff	(1.302.70)	İ	Del. quantity cm3/:	(0.003.00)
electromagnet Volt:	12	\perp	3rd speed 1/min:	
3rd speed 1/min:		Ι		
	1000	T	Charge press. hPa:	1000
		T	Shutoff	40
	0.601.40	+	electromagnet Volt:	12
	(0.301.70)	+	Del. quantity cm3/:	14.0022.00
Shutoff		+		(11.0025.00)
electromagnet Volt:	12	+	4th speed 1/min:	
		+	Charge press. hPa:	1000
Supply-pump pressur	e characteristic:	+	Shutoff	
		+	electromagnet Volt:	12
1st speed 1/min:	1300	+	Del. quantity cm3/:	47.0053.00
Charge press. hPa:	1000	+	1000s.:	(44.0056.00)
Supply-pump		1	5th speed 1/min:	
pressure bar:	6.006.60	1	Charge press. hPa:	
Shutoff		1	Shutoff	1000
electromagnet Volt:	12	L	electromagnet Volt:	12
2nd speed 1/min:		Ι	Del. quantity cm3/:	
Charge press. hPa:		T		(86.5092.50)
	1000	T		
Supply-pump	4.605.20	T	6th speed 1/min:	
	4.605.20	†	Charge press. hPa:	1000
Shutoff	40	+	Shutoff	
electromagnet Volt:	12	+	electromagnet Volt:	12
3rd speed 1/min:	500	+	Del. quantity cm3/:	93.0094.00
Supply-pump		+		(90.5096.50)
	2.703.30	+	7th speed 1/min:	700
Shutoff		+	Charge press. hPa:	~
electromagnet Volt:	12	+	Shutoff	
		+	electromagnet Volt:	12
Overlow quantity at	overflow valve:	+	Del. quantity cm3/:	84.5085.50
·		+		(82.0088.00)
1st speed 1/min:	500	+	8th speed 1/min:	
Charge press. hPa:	-	+	Charge press. hPa:	
Shutoff		1	Shutoff	1000
electromagnet Volt:	12	1	electromagnet Volt:	12
	41.7083.40	1	Del. quantity cm3/:	92 00 96 00
quantity cm3/10s:	(26.7098.40)	\perp	10009	(91.0097.00)
2nd speed 1/min:	1300	Ι	9th speed 1/min:	
Charge press. hPa:		Ι	Charge press. hPa:	
Shutoff	1000	T	Shutoff	
electromagnet Volt:	12	T		12
	55.50139.00	T	electromagnet Volt:	
		Ť	Del. quantity cm3/:	(7, 50,(9, 50,
quantity cm3/10s:	(40.50154.00)	†	10005.:	(74.5080.50)
Dalifornio accesso and	lamandan ini indhami	†	44 -1 1 4 - 22	
Delivery-quant. and	breakaway char.:	+	Mech. shutoff:	
		+	Mech. Abstellung:	
Amatau a da da da	700.	+	4	4700
1nd speed 1/min:		+	1st speed 1/min:	
Charge-air pressure	-setting	+	Charge press. hPa:	
point hPa:		+	Del. quantity cm3/:	0.003.00
LDA-stroke mm:	7.0	+	1000s.:	(0.003.00)
Shutoff		+	Shutoff	
electromagnet Volt:	12	+	electromagnet volt:	12
Del. quantity cm3/:	89.0090.00	+	-	
1000s.:	(86.5092.50)	+	Electr. shutoff:	
2nd speed 1/min:		+		
Charge press. hPa:	1000	+	1st speed 1/min:	300

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1/min: 300 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 22.00...26.00 10005.: (19.00...29.00) cm3/: 5.0 Dispersion 1000s.: (5.0) 1/min: 350 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.00...15.00 1000s.: (7.00...17.00) 3rd speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...2.60 1000s.: (0.00...2.60) Automatic starting fuel delivery: 1st speed 1/min: 150 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 95.00...145.00 1000S.: (95.00...145.00) 2nd speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity_cm3/: 62.00...72.00 1000s.: (62.00...72.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 95.00...145.00 1000s.: (95.00...145.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions:

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet Edition : 05.05.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1300R280 Type number : 0 460 424 037 Customer Part-No. : 2 643 H05 5

Customer-specific information Customer : PERKINS

Engine : T4.40 LKW

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., par: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

Pressure bar: 172.00...175.00

Perforated plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 950 Charge press. hPa: 1000

mm: 1.80...2.20 Setting value

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 950

Charge press hPa: 1000

Setting value bar: 4.60...5.20

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1000 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 93.00...94.00

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion 1000s.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 700 Del. quantity cm3/

1000s.: 84.50...85.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 300 Speed Del. quantity cm3/

1000s.: 22.00...26.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1530 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 47.00...53.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 95.00...145.00

mind 1000s.: 95.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1300

hPa: 1000 Charge press

TD travel mm: 2.00...2.80 mm: (1.70...3.10)

electromagnet Volt: 12

2nd speed 1/min: 950 Charge press hPa: 1000	Charge press. hPa: 1000 Shutoff
TD travel mm: 1.802.20	
	electromagnet Volt: 12
mm: 1.302.70	Del. quantity cm3/: 0.003.00
Shutoff	1000\$.: (0.003.00)
electromagnet Volt: 12	3rd speed 1/min: 1600
3rd speed 1/min: 500	Charge press. hPa: 1000
Charge press hPa: 1000	Shutoff
TD travel mm: 0.601.40	electromagnet Volt: 12
mm: 0.301.70	Del. quantity cm3/: 11.0019.00
Shutoff	10008.: (8.0022.00)
electromagnet Volt: 12	4th speed 1/min: 1530
	Charge press. hPa: 1000
Supply-pump pressure characteristic:	- Shutoff
supply parts pressure that after 13016.	1
1st speed 1/min: 1300	electromagnet Volt: 12
	Del. quantity cm3/: 47.0053.00
Charge press, nPa: 1000	1000\$.: (44.0056.00)
Supply-pump -	- 5th speed 1/min: 1300
pressure bar: 6.006.60	- Charge press. hPa: 1000
Shutoff -	- Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 950	Del. quantity cm3/: 87.7091.30
Charge press. hPa: 1000	10005.: (86.5092.50)
Supply-pump -	6th speed 1/min: 1000
pressure bar: 4.605.20	Charge press. hPa: 1000
Shutoff	Shutoff
electromagnet Volt: 12	
3rd speed 1/min: 500	electromagnet Volt: 12
	Del. quantity cm3/: 93.0094.00
Supply-pump - 270 770	1000s.: (90.5096.50)
pressure bar: 2.703.30	7th speed 1/min: 700
Shutoff -	- Charge press. hPa: -
electromagnet Volt: 12	Shutoff
•	electromagnet Volt: 12
Overlow quantity at overflow valve: -	- Del. quantity cm3/: 84.5085.50
•	1000s.: (82.0088.00)
1st speed 1/min: 500	8th speed 1/min: 700
Charge press. hPa: -	Charge press. hPa: 1000
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
Overflow : 41.7083.40	
quantity cm3/10s: (26.7098.40)	Del. quantity cm3/: 92.0096.00
2nd speed 1/min: 1300	1000\$.: (91.0097.00)
	9th speed 1/min: 500
Charge press. hPa: 1000	Charge press. hPa: -
Shutoff -	Shutoff
electromagnet Voit: 12	electromagnet Volt: 12
Overflow : 55.50139.00 -	Del. quantity cm3/: 75.5079.50
quantity cm3/10s: (40.50154.00) -	1000s.: (74.5080.50)
·	-
Delivery-quant. and breakaway char.:	- Mech. shutoff:
-	Mech. Abstellung:
	1
1nd speed 1/min: 700	1st speed 1/min: 1300
Charge-air pressure-setting	Charge press. hPa: 1000
point hPa: 300	Del. quantity cm3/: 0.003.00
LDA-stroke mm: 7.0	10008.: (0.003.00)
Shutoff -	
	- Shutoff
electromagnet Volt: 12	f electromagnet volt: 12
Del. quantity cm3/: 89.0090.00	mi and a shirt co
1000\$:: (86.5092.50)	Electr. shutoff:
2nd speed 1/min: 1660 -	

1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 300 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 22.00...26.00 1000s.: (19.00...29.00) Dispersion cm3/: 5.0 1000s.: (5.0) 1/min: 350 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.00...15.00 10005:: (7.00...17.00) 1/min: 400 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...2.60 1000s : (0.00 . . . 2.60) Automatic starting fuel delivery: 1/min: 150 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 95.00...145.00 1000s.: (95.00...145.00) 1/min: 250 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 62.00...72.00 1000s.: (62.00...72.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 95.00...145.00 1000s.: (95.00...145.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: 3.2...3.4 K KF mm: K-OT

mm: 1.1...1.5

mm: 37.2...39.2

mm: 7.0

Yb mm: 47.2...55.6

Remarks:

: REGELFEDER

: 1 464 650 366
Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Operate control lever after each manifold pressure compensator pressure change.

* Correction at adjusting nut

A25

MS

Ya

LDA stroke

Note inst. in remarks column

Test scheet : 05.05.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1300R280 Type number : 0 460 424 037 Customer Part-No.: 2 643 H06 7

Customer-specific information Customer : PERKINS

Engine : T4.40 LKW

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

Pressure bar: 172.00...175.00

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 950 Charge press. hPa: 1000 Setting value mm: 1.80...2.20

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 950 Charge press hPa: 1000 Setting value bar: 4.60...5.20

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 93.00...94.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/

1000s.: 84.50...85.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 300

Del. quantity cm3/

1000s.: 22.00...26.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1430 Charge press hPa: 1000

Del. quaritity cm3/

1000s.: 47.00...53.00

electromagnet Volt: 24

Start:

1/min: 100

Del. quantity cm3/: 95.00...145.00

1000s.: 95.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1300 1st speed Charge press hPa: 1000

mm: 2.00...2.80 TD travel mm: (1.70...3.10) electromagnet Volt: 24

2nd speed 1/min: 950	+ Charge press. hPa: 1000
Charge press hPa: 1000	+ Shutoff
TD travel mm: 1.802.20	+ electromagnet Volt: 24
mm: (1.302.70)	+ Del. quantity cm3/: 0.003.00
Shutoff	1000s.: (0.003.00)
electromagnet Volt: 24 3rd speed 1/min: 850	de de la descripción de la des
Charge press hPa: 1000	+ Charge press. hPa: 1000 + Shutoff
TD travel mm: 0.601.40	electromagnet Volt: 24
mm: (0.301.70)	+ Del. quantity cm3/: 11.0019.00
Shuroff	1000s.: (8.0022.00)
electromagnet Volt: 24	+ 4th speed 1/min: 1430
Supply—pump pressure characteristic:	+ Charge press. hPa: 1000 + Shutoff
supply pain pressure that accertisely.	+ electromagnet Volt: 24
1st speed 1/min: 1300	Del. quantity cm3/: 47.0053.00
Charge press. hPa: 1000	1000s.: (44.0056.00)
Supply-pump	+ 5th speed 1/min: 1300
pressure bar: 6.006.60 Shutoff	+ Charge press. hPa: 1000
electromagnet Volt: 24	+ Shutoff + electromagnet Volt: 24
2nd speed 1/min: 950	+ Del. quantity cm3/: 87.7091.30
Charge press. hPa: 1000	+ 1000s.: (86.5092.50)
Supply-pump	+ 6th speed 1/min: 1000
pressure bar: 4.605.20	+ Charge press. hPa: 1000
Shutoff electromagnet Volt: 24	+ Shutoff
3rd speed 1/min: 500	+ electromagnet Volt: 24 + Del. quantity cm3/: 93.0094.00
Supply-pump	10008.: (90.5096.50)
pressure bar: 2.703.30	+ 7th speed 1/min: 700
Shutoff	+ Charge press. hPa: -
electromagnet Volt: 24	† Shutoff
Overlow quantity at overflow valve:	+ electromagnet Volt: 24
over tow qualitity at over flow valve.	+ Del. quantity cm3/: 84.5085.50 + 1000S.: (82.0088.00)
1st speed 1/min: 500	+ 8th speed 1/min: 700
Charge press. hPa: -	+ Charge press. hPa: 1000
Shutorf	+ Shutoff
electromagnet Volt: 24 Overflow: 41.7083.40	+ electromagnet Volt: 12
quantity cm3/10s: (26.7098.40)	+ Del. quantity cm3/: 92.0096.00 + 1000S.: (91.0097.00)
2nd speed 1/min: 1300	9th speed 1/min: 500
Charge press. hPa: 1000	Charge press. hPa: -
Shutoff	+ Shutoff
electromagnet Volt: 24	+ electromagnet Volt: 24
Overflow : 55.50139.00 quantity cm3/10s: (40.50154.00)	+ Del. quantity cm3/: 75.5079.50 + 1000S.: (74.5080.50)
qualities (105, 105, 105, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	T 10003.: (74.5060.50)
Delivery quant. and breakaway char.:	Hech. shutoff:
•	+ Mech. Abstellung:
1md amond 4/min 700	+
1nd speed 1/min: 700 Charge-air pressure-setting	+ 1st speed 1/min: 1300
point hPa: 300	+ Charge press. hPa: 1000 + Del. quantity cm3/: 0.003.00
LDA-stroke mm: 7.0	10008:: (0.003.00)
Shutoff	+ Shutoff
electromagnet Volt: 24	+ electromagnet volt: 24
Del. quantity cm3/: 89.0090.00	The state of the s
1000S.: (86.5092.50)	+ Electr. shutoff:

1st speed 1/min: 300 Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 300 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 22.00...26.00 1000s.: (19.00...29.00) cm3/: 5.0 1000s.: (5.0) 1/min: 350 Dispersion 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 9.00...15.00 1000s.: (7.00...17.00) 3rd speed 1/min: 400 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...2.60 1000S.: (0.00...2.60) Automatic starting fuel delivery: 1st speed 1/min: 150 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 95.00...145.00 1000s.: (95.00...145.00) 1/min: 250 2nd speca Shuto electromagnet Volt: 24 Del. quantity cm3/: 62.00...72.00 1000S.: (62.00...72.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 95.00...145.00 1000S.: (95.00...145.00) Shutoff electromagnet: Cut-in min voltage : 20.0 Rated voltage : 24.0 Mounting and assembly dimensions: Designation K mm: 3.2...3.4 KF mm: K-OT

mm: 1.1...1.5

mm: 37.2...39.2

mm: 7.0

Yb mm: 47.2...55.6
Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Ya

MS

LDA stroke

Note inst. in remarks column

Test scheet : CUM 3.9 P43 Edition : 22.04.94 : 14.04.92 replaces Calibrating oil : ISO-4113

Injection pump : VE4/12F1100R378-7 : 0 460 424 074 Type number

Customer Part-No. :

Customer-specific information Customer

Engine : 4 BT-390 580K

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.8

mm: +-0.04(0.06)

Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 900 Setting value mm: 2.30...2.70

electromagnet Volt: 12

Supply-pump pressure

1/min: 900

Setting value bar: 4.10...4.70

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 750 Speed

Del. quantity cm3/

1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 500

Del. quantity cm3/

1000s.: 6.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1170 Speed

Del. quantity cm3/

1000s.: 31.50...38.50

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...120.00 mind 1000s.: 70.00

mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed

1/min: 1100 mm: 3.10...3.90 TD travel mm: (2.80...4.20)

Shutoff

electromagnet Volt: 12 1/min: 900 3rd speed

B01

mm: 2.30...2.70 mm: (1.80...3.20) TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 60.50...63.50 1000s.: (59.00...65.00) 10th speed 1/min: 900 Shutoff electromagnet Volt: 12 7.Rotacao 1/min: 650 TD travel mm: 0.70...1.50 Shutoff mm: (0.40...1.80) ele anet Volt: 12 .ity cm3/: 60.80...63.80 1000s.: (58.80...65.80) ed 1/min: 750 Shutoff Del. electromagnet Volt: 12 12th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 63.50...64.50 1000s.: (61.00...67.00) 1/min: 500 1st speed Supply-pump bar: 2.40...3.00 pressure 1/min: 500 20th speed Shutoff Shutoff electromagnet Volt: 12 2nd speed 1/min: 900 electromagnet Volt: 12 Del. quantity cm3/: 58.00...66.00 1000s.: (56.00...68.00) 2nd speed Supply-pump bar: 4.10...4.70 pressure Shutoff Mech. shutoff: electromagnet Volt: 12 Mech. Abstelluna: 1/min: 1100 3rd speed Supply-pump pressure bar: 4.90...5.50 Shutoff electromagnet Volt: 12 Shutoff electromagnet volt: 12 Overlow quantity at overflow valve: Electr. shutoff: 1st speed 1/min: 500 Shutoff 1st speed 1/min: 500 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 : 41.70...86.10 1000s.: (0.00...3.00) cm3/10s: (26.70...101.10) quantity Shutoff 1/min: 1100 2nd speed electromagnet volt: -Shutoff electromagnet Volt: 12 Idle delivery: : 55.60...139.00 Overflow cm3/10s: (40.60...154.00) quantity 1st speed 1/min: 500 Shutoff Delivery-quant. and breakaway char.: electromagnet Voit: 12 Del. quantity cm3/: 6.00...12.00 1000s.: (4.00...14.00) Dispersion cm3/: 5.5 2nd speed 1/min: 1260 Shutoff 1000s.: (7.0) 1/min: 570 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 2nd speed Shutoff 1000s.: (0.00...3.00) 1/min: 1190 electromagnet Volt: 12 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) 3rd speed Shutoff Automatic starting fuel delivery: 1st speed 1/min: 130 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 31.50...38.50 1000S.: (29.00...41.00) electromagnet Volt: 12 Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00) 9th speed 1/min: 1100

2nd speed 1/min: 240

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 30.00...70.00 1000s.: (30.00...70.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 70.00...120.00

1000s.: (70.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -

mm: 5.0...5.4 KF MS mm: 1.2...1.4

SVS max. mm: 2.5

mm: 34.8...38.8 Ya Yb mm: 40.2...45.6

Remarks:

: C.D.C. # 3 917 528

Ya = Distance between VE flange and speed-control lever in idle

position

Measurement point = edge of control

Lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control

lever on distributor-head end

Note inst. in remarks column

Test scheet : CUM

Edition : 05.05.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1100R374-4

Type number : 0 460 424 089

Customer-specific information

Customer

Engine : 4 BTA 3.9

Power KW: 81 1/min: 2200 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 109

Openina

Pressure bar: 250...253

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840

x Lenath

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.55

mm: +-0.04(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel

1/min: 750 Speed Charge press. hPa: 1000

Setting value mm: 3.80...4.20

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750 Charge press hPa: 1000

Setting value bar: 5.10...5.70

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 85.5...86.5

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1145 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 65.00...71.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100

Del. quantity cm3/: 65.00...105.00

1000s.: 65.0 mind

Shutoff Overflow : 111.10...194.40 electromagnet Volt: 24 cm3/10s: (96.10...209.40) quantity Inspection-pump test specifications Test specifications in parentheses Delivery-quant. and breakaway char.: Timing-device characteristic: 1nd speed 1/min: 700 Charge-air pressure-setting point hPa: 350 LDA-stroke mm: 6.6 1st speed 1/min: 1100 Charge press hPa: 1000 mm: 5.20...6.00 TD travel Shutoff mm: (4.90...6.30): 24 Shutoff 2nd speed 1/min: 750 Charge press hPa: 1000 TD travel mm: 3.80...4.20 Charge press. hPa: 1000 mm: (3.30...4.70) Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: electromagnet Volt: 24 3rd speed 1/min: 500 Charge press. hPa: 1000 Shutoff hPa: 1000 Charge press TD travel mm: 2.10...2.90 mm: (1.80...3.20) electromagnet Volt: 24
Del. quantity cm3/: 15.00...55.00
1000S.: -Shutoff electromagnet Volt: 24 Supply-pump pressure characteristic: 1/min: 1145 4th speed Charge press. hPa: 1000 1/min: 1100 1st speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 24 Supply-pump Del. quantity cm3/: 65.00...71.00 1000s.: (62.00...74.00) 5th speed 1/min: 1100 bar: 6.70...7.30 pressure Shutoff Charge press. hPa: 1000 Shutoff electromagnet Volt: 24 1/min: 750 2nd speed Charge press. hPa: 1000 electromagnet Volt: 24 Del. quantity cm3/: 76.00...79.00 Supply-pump bar: 5.10...5.70 pressure 1000s.: (74.50...80.50) Shutoff 1/min: 1000 6th speed electromagnet Volt: 24 Charge press. hPa: 1000 Shutoff 1/min: 500 3rd speed electromagnet Volt: 24
Del. quantity cm3/: 78.50...81.50
1000S.: (76.50...83.50)
7th speed 1/min: 850
Charge press. hPa: 1000
Shutoff Charge press. hPa: 1000 Supply-pump pressure bar: 4.00...4.60 Shutoff electromagnet Volt: 24 Overlow quantity at overflow valve: electromagnet Volt: 24 Del. quantity cm3/: 85.50...86.50 1st speed 1/min: 500 1000s.: (83.00...89.00) Charge press. hPa: -Shutoff 1/min: 500 8th speed Charge press. hPa: electromagnet Volt: 24 Shutoff : 97.20...138.80 Overflow electromagnet Volt: 24 Del. quantity cm3/: 63.50...64.50 1000s.: (60.00...68.00) quantity cm3/10s: (82.20...153.80) 2nd speed 1/min: 1100 Charge press. hPa: 1000 Shutoff Mech. shutoff: electromagnet Volt: 24 Mech. Abstellung:

1st speed 1/min: 1100 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: -Shutoff electromagnet volt: 24 Electr. shutoff: 1st speed 1/min: 375 Charge press. hPa: Del. quantity cm3/: 0.00...3.00 1000s.: -Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.00...14.00 1000s.: (6.00...16.00) cm3/: 3.5 Dispersion 1000s.: (5.0) 1/min: 455 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1000s.: -Automatic starting fuel delivery: 1st speed 1/min: 240 Soutoff electromagnet Volt: 24 Del. quantity cm3/: 35.00...65.00 1000s.: (35.00...65.00) 2nd speed 1/min: 130 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 65.00...125.00 1000s.: -4th speed 1/min: 100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 65.00...105.00 1000s.: (65.00...105.00) Shutoff electromagnet: Cut-in min voltage : 20.0 Rated voltage : 24.0 Mounting and assembly dimensions:

K mm: KF mm: 5.0..5.4
MS mm: 1.0..1.2
LDA stroke ya mm: 34.8..38.8
Yb mm: 40.8..46.2

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Operate control lever after each manifold pressure compensator pressure change.

* Correction at adjusting nut

Designation

Note inst. in remarks column

Test scheet : MLM

Edition : 28.04.94 replaces : 16.06.92 Calibrating oil : ISO-4113

Injection pump : VE4/12F150GR492 Type number : 0 460 424 091

Customer-specific information

Customer · MUM

Engine : D 229 EC 4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 109

Openina

bar: 207...210 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mn: -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100

Setting value mm: 5.10...5.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed

Setting value bar: 6.70...7.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1100

Del. quantity cm3/

1000s.: 59.70...60.70

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.01000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1600

Del. quantity cm3/ 1000s.: 42.00...48.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 90.00...130.00 mind 1000s.: 90.0

mind

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1500

mm: 6.20...7.00 mm: (5.90...7.30) TD travel

: 12

Shutoff 1/min: 1100 2nd speed

TD travel mm: 5.10...5.50 mm: (4.60...6.00)

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 700 mm: 0.80...1.60 TD travel

mm: (0.50...1.90)

B07

Shutoff electromagnet Volt: 12	Del. quantity cm3/: 59.7060.70 1000s.: (57.2063.20)
Total Control of the	7th speed 1/min: 900
Supply-pump pressure characteristic:	Shutoff
+	electromagnet Volt: 12
1st speed 1/min: 1500 +	Del. quantity cm3/: 61.5065.20
Supply-pump	1000s.: (60.0067.00)
pressure bar: 8.208.80	8th speed 1/min: 500 Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 1100	Del. quantity cm3/: 54.0060.00
Supply-pump +	10008.: (52.0062.00)
pressure bar: 6.707.30	
Shutoff	Mech. shutoff:
electromagnet Volt: 12	
3rd speed 1/min: 700	Electr. shutoff:
pressure bar: 4.905.50	1st speed 1/min: 375
Shutoff	Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	1000s.: -
4	Shutoff
Overlow quantity at overflow valve:	electromagnet volt: -
4	
1st speed 1/min: 500 + Shutoff	Idle delivery:
electromagnet Volt: 12	1st speed 1/min: 375
Overflow : 97.20138.80	1st speed 1/min: 375 Shutoff
quantity cm3/10s: (82.20153.80)	electromagnet Volt: 12
2nd speed 1/min: 1500 +	Del. quantity cm3/: 13.0017.00
Shutoff	1000s.: (11.0019.00)
electromagnet Volt: 12	Dispersion cm3/: 3.5
Overflow : 111.10194.40 +	1000\$.: (5.0)
quantity cm3/10s: (96.10209.40)	2nd speed 1/min: 300
Delivery-quant. and breakaway char.:	Shutoff electromagnet Volt: 12
T	Del. quantity cm3/: 28.5036.50
<u> </u>	10008.: (26.5038.50)
2nd speed 1/min: 1850 +	3rd speed 1/min: 450
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
Del. quantity cm3/: 0.003.00	Del. quantity cm3/: 0.006.00
1000S.: - 3rd speed 1/min: 1700	1000s.: (0.006.00)
Shutoff	Automatic starting fuel delivery:
electromagnet Volt: 12	Automatic State ing fact detivery.
Del. quantity cm3/: 14.0028.00	1st speed 1/min: 250
1000s.: (11.0031.00)	Shutoff
4th speed 1/min: 1600 +	electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 20.0060.00
electromagnet Volt: 12	1000s.: (20.0060.00)
Del. quantity cm3/: 42.0048.00 + 1000s.: (39.0051.00)	4th speed 1/min: 100
5th speed 1/min: 1500	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 90.00130.00
Del. quantity cm3/: 53.0057.00	1000s.: (90.00130.00)
1000s.: (51.5058.50)	
6th speed 1/min: 1100 + Shutoff	Shutoff electromagnet:
electromagnet Volt: 12	
TOUR SHARE TO CE. TE	

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4 KF mm: 5.2...5.6 MS1 mm: 1.2...1.4 Ya mm: 42.0...44.0 Yb mm: 36.8...45.2

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor—head end

Note inst. in remarks column

Test scheet

Edition

: 29.04.94

replaces

Calibrating oil : ISO-4113

Injection pump

: VE4/12F1350R505

Type number

: 0 460 424 094

Customer Part-No. :

Customer-specific information

Customer

: IVECO-FIAT

"DI"

Engine

: 8040.45.4300

Power Speed KW: 75

1/min: 1350

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil

return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 027

Opening |

Pressure bar: 250.00...253.00

Perforated-plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 450

Start of delivery

Prestroke

mn: -

(from BDC): -

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed

1/min: 1100

Charge press. hPa: 1000

B10

Setting value mm: 3.90...4.10

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed

1/min: 1100

Charge press hPa: 1000

Setting value bar: 7.20...7.80

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700

Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 73.50...74.50

Shutoff

electromagnet Volt: 24

cm3/: 3.5 Dispersion

1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/ 1000s.: 48.00...49.00

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 6.00...10.00

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 3.5 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1550 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 19.00...25.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...110.00

1000s.: 60.00 mind

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications

Test specifications in parentheses

Timing-device chara	ctarietic.	t	1nd speed 1/min:	
-		Ŧ	Charge air pressure point hPa:	350
3rd speed 1/min:		+		5.3
Charge press hPa:	1000	t	Shutoff	
	3.904.10	+	electromagnet Volt:	
	(3.304.70)	+	Del. quantity cm3/:	
Shutoff		+		(63.0071.00)
electromagnet Volt:		+	2nd speed 1/min:	
4th speed 1/min:		+	Charge press. hPa:	1000
	1000	+	Shutoff	
	1.402.00	+	electromagnet Volt:	
	(1.002.40)	+	Del. quantity cm3/:	
Shutoff		+		(0.003.00)
electromagnet Volt:	24	+	5th speed 1/min:	
7. Rotacao 1/min:		+	Charge press. hPa:	1000
Charge press. hPa:		†	Shutoff	
	2.703.30	+	electromagnet Volt:	
	(2.303.70)	+	Del. quantity cm3/:	
Shutoff		+		(16.0028.00)
electromagnet Voit:	24	†	9th speed 1/min:	
		+	Charge press. hPa:	1000
Supply-pump pressure	e characteristic:	†	Shutoff	
A-4	700	†	electromagnet Volt:	
1st speed 1/min:		†	Del. quantity cm3/:	
Charge press. hPa:	1000	t		(65.0072.00)
Supply-pump		†	10th speed 1/min:	
	4.705.30	+	Charge press. hPa:	1000
Shutoff		†	Shutoff	44
electromagnet Volt:		†	electromagnet Volt:	
2nd speed 1/min:		†	Del. quantity cm3/:	
Charge press. hPa:	1000	+		(67.5074.50)
Supply-pump	7.00	†	12th speed 1/min:	
	7.207.80	†	Charge press. hPa:	1000
Shutoff		†	Shutoff	•
electromagnet Volt:		+	electromagnet Volt:	
3rd speed 1/min:		†	Del. quyntity cm3/:	
Charge press. hPa:	1000	†		(70.5077.50)
Supply-pump	0.40	†	18th speed 1/min:	500
	8.609.20	†	Charge press. hPa:	-
Shutoff	24	†	Shutoff	01
electromagnet Volt:	24	+	electromagnet Volt:	
0		†	Del. quantity cm3/:	48.0049.00
Overlow quantity at	overtlow valve:	†	100us.:	(45.0052.00)
1	500	†	March - 1 4 - 6 6	
1st speed 1/min:	500	†	Mech. shutoff:	
Shutoff	04	†	Mech. Abstellung:	
electromagnet Volt:		†	4	4000
Overflow :	75.00119.50	†	1st speed 1/min:	
quantity cm3/10s:	(60.00134.50)	+	Del. quantity cm3/:	0.003.00
2nd speed 1/min:		†		(0.003.00)
Charge press. hPa:	1000	†	Shutoff	
Shutoff	24	+	electromagnet volt:	24
electromagnet Volt:	24	+	m1	
	97.30180.70	†	Electr. shutoff:	
quantity cm3/10s:	(82.30195.70)	†	A-1 1 A 1 1	750
National and the state of the s	towards	†	1st speed 1/min:	
Delivery-quant. and	preakaway char.:	†	Del. quantity cm3/:	U.UU3.00
		+	1000\$.:	(0.003.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 350

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 6.00...10.00

1000s.: (3.00...13.00) cm3/: 3.5

Dispersion 1000s.: (5.0)

2nd speed 1/min: 450

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00

1000S.: (60.00...110.00)

2nd speed 1/min: 250

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 25.00...55.00
1000S.: (25.00...55.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00

1000s.: (60.00...110.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

mm: 3.4...3.8 K

KF mm: KOT

MS1 mm: 1.1...1.4

LDA stroke mm: 5.3

mm: 36.9...40.9 Ya

mm: 37.8...43.0 Yb

Remarks:

Operate control lever after each manifold-pressure compensator pressure

change.

* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle

position

Measurement point = edge of control

Lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed

position

Measurement point = edge of control

lever on distributor-head end

Note inst. in remarks column

Test scheet

: 29.04.94 Edition

replaces

Calibrating oil : ISO-4113

: VE4/12F1350R511 Injection pump : 0 460 424 095 Type number

Customer Part-No. :

Customer-specific information

Customer "DT" : IVECO-FIAT

Engine : 8040.45.4383

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina .

bar: 250.00...253.00 Pressure

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00

mm: 450 x Length

Start of delivery

Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Charge press. hPa: 1000

Setting value mm: 2.90...3.10

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000 Speed Charge press hPa: 1000

Setting value bar: 6.60...7.20

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 700 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 75.50...76.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 3.5

1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 55.50...56.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/

1000s.: 4.00...8.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 3.5 1000s.: (5.0)

Full-load speed regulation

1/min: 1450 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 30.00...34.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...110.00

mind 1000s.: 60.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

TD travel mm: 3rd speed 1/min:	1000 4.605.20 (4.205.60) 1100	+++++++++++++++++++++++++++++++++++++++	1nd speed 1/min: Charge-air pressure point hPa: LDA-stroke mm: Shutoff	-setting 450
mm:	1000 4.204.80 (3.805.20)	†	electromagnet Volt: Del. quantity cm3/: 1000s.:	
Shutoff electromagnet Volt: 4th speed 1/min:	1000	‡	2nd speed 1/min: Charge press. hPa: Shutoff	1000
TD travel mm:	1000 2.903.10 (2.303.70)	†		0.003.00 (0.003.00)
Shutoff electromagnet Volt: 5th speed 1/min:	800	†	5th speed 1/min: Charge press. hPa: Shutoff	1000
TD travel mm:	1000 0.100.70 (0.001.10)	+		30.0034.00 (26.0038.00)
Supply-pump pressure		1	9th speed 1/min: Charge press. hPa: Shutoff	1000
Supply-pump	1000	+		66.5070.50 (65.0072.00)
Shutoff electromagnet Volt:		+	10th speed 1/min: Charge press. hPa: Shutoff	1000
2nd speed 1/min: Charge press. hPa: Supply-pump	1000	‡		71.0075.00 (69.5076.50)
Shutoff electromagnet Volt:		‡	12th speed 1/min: Charge press. hPa: Shutoff	1000
3rd speed 1/min: Charge press. hPa: Supply-pump	1000	‡	electromagnet Volt: Del. quyntity cm3/: 1000S.:	
pressure bar: Shutoff electromagnet Volt:	8.609.20 24	†	18th speed 1/min: Charge press. hPa: Shutoff	500
Overlow quantity at	overflow valve:	†	electromagnet Volt: Del. quantity cm3/: 1000s.:	
1st speed 1/min: Charge press. hPa: Shutoff	-	+	Mech. shutoff: Mech. Abstellung:	
electromagnet Volt: Overflow: quantity: 2nd speed: 2nd	75.00119.50 (60.00134.50)	‡ ‡	1st speed 1/min: Del. quantity cm3/:	1350 0.003.00 (0.003.00)
Charge press. hPa: Shutoff electromagnet Volt:	1000	+	Shutoff electromagnet volt:	
	97.30180.70	†	Electr. shutoff: 1st speed 1/min:	375
Delivery-quant. and	breakaway char.:	I I	Del. quantity cm3/:	

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 375

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 4.00...8.00

1000s.: (1.00...11.90)

cm3/: 3.5 1000s.: (5.0) Dispersion

2nd speed 1/min: 450

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00)

1/min: 250 2nd speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 40.00...70.00 1000s.: (40.00...70.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00

1000s.: (60.00...110.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0

: 24.0 Rated voltage

Mounting and assembly dimensions:

Designation

mn: 3.5...3.6 K

KF mm: KOT

MS1 mm: 1.1...1.4

LDA stroke mm: 4.5

mm: 36.9...40.9 Ya mm: 42.4...47.6 Yb

Remarks:

Operate control lever after each

manifold-pressure compensator pressure

change.

* Correction at adjusting nut

Ya = Distance between VE flange and

speed-control lever in idle position

Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed

position

Measurement point = edge of control

lever on distributor-head end

Note inst. in remarks column

Test scheet : 29.04.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1400R516 Type number : 0 460 424 096

Customer Part-No. :

Customer-specific information Customer : MAXON

Engine : S4T - PLUS

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating oil return temp.

with thermometer: 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 101 assembly

Openina

bar: 207.00...210.00 Pressure

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100 Charge press. hPa: 1200

Setting value mm: 1.90...2.10

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100 Charge press hPa: 1000

Setting value bar: 6.20...6.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1100 Charge press. hPa: 1200

Del. quantity cm3/ 1000s.: 97.00...98.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.8 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/ 1000s.: 67.00...71.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 400 Del. quantity cm3/ 1000s.: 5.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (5.0)

Full-load speed regulation

1/min: 1500 Speed Charge press hPa: 1200 Del. quantity cm3/ 1000s.: 75.50...81.50

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 105.00...155.00

mind 1000s.: 105

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:	Charge-air pressure-setting
2-4	point hPa: 600
2nd speed 1/min: 1400	- LDA-stroke mm: -
Charge press hPa: 1200	- Shutoff
TD travel mm: 2.102.90	electromagnet Volt: 12
mm: (1.803.20)	- Del. quantity cm3/: 67.0071.00
3rd speed 1/min: 1100	- 1000S.: (64.5073.50)
Charge press hPa: 1200	- 2nd speed 1/min: 1800
TD travel mm: 1.702.10	- Charge press. hPa: 1200
mm: (1.202.60)	- Shutoff
Shutoff	- electromagnet Volt: 12
electromagnet Volt: 12	 Del. quantity cm3/: 0.003.00
4th speed 1/min: 900	1000S.: (0.003.00)
Charge press hPa: 1200	- 5th speed 1/min: 1600
TD travel mm: 0.501.30	Charge press. hPa: 1200
mm: (0.201.60)	- Shutoff
Shutoff	
electromagnet Volt: 12	electromagnet Volt: 12
etectionagnet vott. 12	- Del. quantity cm3/: 25.0041.00
Complete many management of the second states.	1000s.: (21.0045.00)
Supply-pump pressure characteristic:	- 9th speed 1/min: 1500
4-1 - 1 4/1 000	- Charge press. hPa: 1200
1st speed 1/min: 900	Shutoff
Charge press. hPa: 1200	- electromagnet Volt: 12
Supply-pump +	 Del. quantity cm3/: 75.5081.50
pressure bar: 5.406.00	1000s.: (72.5084.50)
Shutoff	- 10th speed 1/min: 1400
electromagnet Volt: 12	Charge press. hPa: 1200
2nd speed 1/min: 1100	Shutoff
Charge press. hPa: 1200	electromagnet Volt: 12
Supply-pump	Del. quantity cm3/: 93.5097.50
pressure bar: 6.206.80	10008.: (92.0099.00)
Shutoff	- 12th speed 1/min: 1100
electromagnet Volt: 12	Charge press. hPa: 1200
3rd speed 1/min: 1400	- Charge press. Hra: 1200 - Shutoff
	electromagnet Volt: 12
Supply-pump + 7/9 8.00	Del. quyntity cm3/: 97.0098.00
pressure bar: 7.408.00	1000s.: (94.50100.50)
Shutoff	13th speed 1/min: 700
electromagnet Volt: 12	Charge press. hPa: 1200
†	Shutoff
Overlow quantity at overflow valve:	· electromagnet Volt: 12
†	Del. quantity cm3/: 104.0110.0
1st speed 1/min: 500 +	1000s.: (102.0112.0)
Charge press. hPa: -	14th speed 1/min: 500
Shutoff	Charge press. hFa: -
electromagnet Volt: 12	Shutoff
Overflow : 97.20138.80	electromagnet Volt: 12
quantity cm3/10s: (82.20153.80)	Del. quantity cm3/: 67.0071.00
2nd speed 1/min: 1400	10008.: (64.5073.50)
Charge press. hPa: 1200	
Shutoff	Mech. shutoff:
electromagnet Volt: 12	recit. Shututt.
Overflow : 111.10194.40	Floren shukuff.
	Electr. shutoff:
quantity cm3/10s: (96.10219.40)	
Daldwan want and bear to	1st speed 1/min: 400
Delivery-quant. and breakaway char.:	Charge press. hPa: -
+	Del. quantity cm3/: 0.003.00
+	1000S.: (0.003.00)
1nd speed 1/min: 750	Shutoff
	electromagnet volt: -

Idle delivery:

1st speed 1/min: 400

Shutoff

electromagnet Volt: 12
Del. quantity cm3/: 5.00...9.00
1000s.: (3.00...11.00)
Dispersion cm3/: 3.5

1000s.: (5.0)

1/min: 375 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 16.0...24.0

1000s.: (14.0...26.0)

1/min: 450 3rd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...3.00

1000s.: -

Automatic starting fuel delivery:

1st speed 1/min: 250

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 30.00...80.00 1000s.: (30.00...80.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 105.00...155.00

1000s.: (105.00...155.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.6...3.8 K KF mm: KOT mm: 1.0...1.2 mm: 35.0...37.0 MS1 Ya mm: 44.8...53.2 Yb

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle

position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control

lever on distributor-head end

B18

Note inst. in remarks column

Test scheet : CUM 5,8 W38 Edition : 28.04.94 replaces : 24.04.90 Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R320-2 Type number : 0 460 426 139

Customer Part-No. :

Customer-specific information

Customer : CDC

Engine : 6 BT-590A

TEST BENCH REQUIREMENTS

Calibrating-oil return temb.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block Piston stroke mm: 1.40

mm: +-0.04(0.06)

; D Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1100 Speed

Charge press. hPa: 1200 Setting value mm: 1.30...1.70

AFB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed Charge press hPa: 1200

Setting value bar: 6.80...7.40

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1100 Speed Charge press. hPa: 1200 Del. quantity cm3/ 1000s.: 73.00...74.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000S.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 51.00...52.00

11

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 350 Charge press hPa: -Del. quantity cm3/

1000s.: 5.50...9.50

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1340 Speed Charge press hPa: 1200

Del. quantity cm3/

1000s.: 52.50...58.50

KSB/AFB		+	Shutoff	
valve	Volt: 12	+	electromagnet Volt:	12
Shutoff		+	2nd speed 1/min:	1100
electromagnet	: Volt: 12	+	Charge press. hPa:	1200
		+	Supply-pump	
Start:		+	pressure bar:	6.807.40
		+	KSB/AFB	
	1/min: 100	+	valve Volt:	12
Del quantity	cm3/: 70.00130.00	+	Shutoff	
	000s.: 70.00	+	electromagnet Volt:	12
KSB/AFB		+	3rd speed 1/min:	
Valve	Volt: 12	+		1200
Shutoff		+	Supply-pump	
electromagnet	: Volt: 12	+		4.104.70
		+	KSB/AFB	
Inspection-pu	mp test specifications	<u> </u>	valve Volt:	12
Test specific	ations in parentheses	+	Shutoff	
	· ·	+	electromagnet Volt:	12
Timing device	characteristic:	+		
		+	Overlow quantity at	overflow valve:
1st speed	1/min: 450*	+		
Charge press	hPa: 1200	+	1st speed 1/min:	500
TD travel	mm: 3.004.00	+	Charge press. hPa:	
	mm: -	+	KSB/AFB	
KSB/AFB		+	valve Volt:	12
valve	Volt: -	+	Shutoff	
electromagnet	Volt: 12	+	electromagnet Volt:	12
	1/min: 1250	1	Overflow :	41.7083.40
Charge press		1	quantity cm3/10s:	
TD travel	mm: 2.203.00	+	2nd speed 1/min:	
	mm: (1.903.30)	1		1200
KSB/AFB		1	KSB/AFB	1200
valve	Volt: 12	1	valve Volt:	12
Shutoff		1	Shutoff	T to
electromagnet	Volt: 12	1	electromagnet Volt:	12
	1/min: 1100	1	Overflow :	55.60139.00
Charge press	hPa: 1200	1	quantity cm3/10s:	
TD travel	mm: 1.301.70	1	quarterey chartos.	(40.00155.00)
	mm: (0.802.20)	1	Delivery-quant. and	hreakayay char ·
KSB/AFB		1	becivery quarter and	Dicakanay chair.
valve	Volt: 12	1		
Shutoff		1	1nd speed 1/min:	700*
electromagnet	Volt: 12	1	Charge-air pressure	
	1/min: 1000	1	point hPa:	
Charge press	hPa: 1200	1		6.8
TD travel	mm: 0.501.30	1	KSB/AFB	0.0
	mm: (0.201.60)	1	valve Volt:	12
KSB/AFB		1	Shutoff	16
valve	Volt: 12	1	electromagnet Volt:	12
Shutoff		1	Del. quantity cm3/:	
electromagnet	Volt: 12	1	10005	(64.5072.50)
: 222 : . 		1	2nd speed 1/min:	
Supply-pump p	ressure characteristic:	1		1200
and a family in		1	KSB/AFB	1200
1st speed	1/min: 1250	1	valve Volt:	12
Charge press.		1	Shutoff	166
Supply-pump	··· ··· · · · · · · · · · · · · · · ·	1	electromagnet Volt:	12
pressure	bar: 7.508.10	1	Del. quantity cm3/:	0.00 3.00
KSB/AFB		1	1000s.:	-
valve	Volt: 12	1	3rd speed 1/min:	
- Wa C + W	10001 12	T	ora specu 1/mm:	1700

B20

Charge press. hPa: KSB/AFB	1200	Electr. shutoff:
valve Volt: Shutoff	12	1st speed 1/min: 350 Charge press. hPa: -
electromagnet Volt:	12 T	that ge piess. Hra
Del. quantity cm3/:	15.0055.00	Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
1000s.:		Shutoff
4th speed 1/min:	1340	electromagnet volt: -
Charge press. hPa: KSB/AFB	1200	KSB/AFB valve Volt: 12
valve Volt:	12 I	vacve vocc. 12
Shutoff	+	Idle delivery:
electromagnet Volt:	12 +	
Del. quantity cm3/: 1000s.:	52.5058.50 +	1st speed 1/min: 350 KSB/AFB
5th speed 1/min:	1250	valve Volt: 12
Charge press. hPa:		Shutoff
KSB/AFB		electromagnet Volt: 12
valve Volt:	12	Del. quantity cm3/: 5.509.50
Shutoff	+	1000s.: (2.5012.50)
electromagnet Volt:	12 +	Dispersion cm3/: 5.5
Del. quantity cm3/:	70.5073.50	1000s.: (7.0)
1000s.:	(69.0075.00)	2nd speed 1/min: 450
6th speed 1/min:	1100	KSB/AFB
Charge press. hPa:	1200	valve Volt: 12
KSB/AFB	T	
	12	Shutoff
• • • • •	12 †	electromagnet Volt: 12
Shutoff		Del. quantity cm3/: 0.004.00
electromagnet Volt:		1000s.: (0.004.00)
Del. quantity cm3/:	73.0074.00	
1900s.:	(70.5076.50)	Automatic starting fuel delivery:
7th speed 1/min:		
Charge press. hPa:		1st speed 1/min: 250
KSB/AFB	1	KSB/AFB
valve Volt:	12	valve Volt: 12
Shutoff	' -	Shutoff
electromagnet Volt:	12 T	
		electromagnet Volt: 12
Del. quantity cm3/:		Del. quantity cm3/: 30.0050.00
10005.7	(70.0079.00)	1000s.: -
8th speed 1/min:	500 +	
Charge press. hPa:	- +	2nd speed 1/min: 130
KSB/AFB	†	KSB/AFB
valve Volt:	12 +	valve Volt: 12
Shutoff	+	Shutoff
electromagnet Volt:	12 +	alactromagnet Nalt. 12
Del. quantity cm3/:		etectromagnet volt: 12
10000	51.0052.00	electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00
(1.1.1.13)	51.0052.00	Del. quantity cm3/: 70.00130.00
10005	51.0052.00 (47.5055.50)	Del. quantity cm3/: 70.00130.00
	51.0052.00 (47.5055.50)	Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100
Mech. shutoff:	51.0052.00 (47.5055.50)	Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB
	51.0052.00 (47.5055.50)	Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12
Mech. shutoff: Mech. Abstellung:	(47.5055.50)	Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve
Mech. shutoff: Mech. Abstellung: 1st speed 1/min:	(47.5055.50)	Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve
Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa:	(47.5055.50) 	Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00
Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/:	(47.5055.50) 	Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve
Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000s.:	(47.5055.50) 	Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 1000s.: -
Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000s.: Shutoff	(47.5055.50) 	Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00
Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000s.: Shutoff electromagnet volt:	(47.5055.50) 	Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 1000s.: -
Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000s.: Shutoff	(47.5055.50) 	Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 1000s.: -
Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000s.: Shutoff electromagnet volt:	(47.5055.50) 1250 1200 0.003.00	Del. quantity cm3/: 70.00130.00 4th speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00130.00 1000S.: - Shutoff electromagnet:

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8
KF mm: KOT
MS mm: 0,8...1,2
SVS max. mm: 1.4
LDA stroke mm: 6,8

LDA stroke mm: 6,8 Ya mm: 34.8...38.8 Yb mm: 41.6...47.2

Remarks:

: C.D.C. # 3 917 943

Operate control lever after each manifold pressure compensator pressure change.

* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

* Unscrew KSB ball valve 2 mm

Note inst. in remarks column

Test scheet : CUM Edition : 28.04.94 replaces : 07.07.92

Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R381-8 Type number : 0 460 426 200

Customer Part-No. :

Customer-specific information

Customer : CDC

Engine : 68T- 5.9 IND.

KW: 64 Power 1/min: 2200 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina |

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Cutside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.50

mm: $\leftarrow 0.04(0.06)$

Outlet : D

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 750 Speed

Setting value mm: 3.30...3.70

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 750 Speed

Setting value bar: 3.50...4.10

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1100

Del. quantity cm3/

1000s.: 49.50...50.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

1/min: 375

Del. quantity cm3/

1000s.: 17.00...23.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1150

Del. quantity cm3/

1000s.: 33.50...39.50

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: 50.00...90.00 mind 1000s.: 50.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

mm: 6.10...6.90 TD travel

mm: (5.80...7.20)

Shutoff electromagnet Volt: 24	+ Del. quantity cm3/: 33.5039.50 + 10008:: (30.5042.50)
3rd speed	+ 12th speed 1/min: 1100
mm: (2.804.20)	+ Shutoff + electromagnet Volt: 24
Shutoff	Del. quyntity cm3/: 49.5050.50 1000s.: (47.0053.00)
electromagnet Volt: 24	1000s.: (47.0053.00)
4th speed 1/min: 500 TD travel mm: 1.302.10	+ 15th speed 1/min: 750
mm: (1.002.40)	+ Shutoff + electromagnet Volt: 24
Shutoff	Del. quantity cm3/: 47.5050.50
electromagnet Volt: 24	+ 1000s.: (45.5052.50)
Supply-pump pressure characteristic:	+ 17th speed 1/min: 600 + Shutoff + electromagnet volt: 24
1st speed 1/min: 500 Supply-pump	Del. quantity cm3/: 43.5049.50 1000H.: (42.0051.00)
pressure bar: 2.403.00 Shutoff	20th speed 1/min: 500
electromagnet Volt: 24	electromagnet Volt: 24
2nd speed 1/min: 750	bel. quantity cm3/: 32.5040.50
Supply-pump pressure bar: 3.504.10 Shutoff	1000s.: (30.5042.50) Mech. shutoff:
electromagnet Volt: 24	Mech. Abstellung:
3rd speed 1/min: 1100	
Supply-pump pressure bar: 5.105.70 Shutoff	+ 1st speed 1/min: 1100 + Del. quantity cm3/: 0.003.00 + 1000S.: (0.003.00)
electromagnet Volt: 24	+ Shutoff
Overlow quantity at overflow valve:	electromagnet volt: 24
1st speed 1/min: 600	+ Electr. shutoff:
Shutoff electromagnet Volt: 24	+ 1st speed 1/min: 375
Overflow : 41.7083.48	Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
quantity cm3/10s: (41.7083.40)	+
2nd speed 1/min: 1100 Shutoff	dle delivery:
electromagnet Volt: 24	1st speed 1/min: 375
Overflow : 55.60139.00	Shutoff
quantity cm3/10s: (55.60139.00)	+ electromagnet Volt: 24
Delivery-quant. and breakaway char.:	+ Del. quantity cm3/: 17.0023.00 + 10008.: (15.0025.00)
or o	Dispersion cm3/: 5.5
	† 1000s.: (7.0)
2nd speed 1/min: 1200	+ 2nd speed 1/min: 480
Shutoff electromagnet Volt: 24	+ Shutoff
Del. quantity cm3/: 0.003.00	+ electromagnet Volt: 24 + Del. quantity cm3/: 0.003.00
1000s.: (0.003.00)	10008.: (0.003.00)
3rd speed 1/min: 1160	+
Shutoff	+ Automatic starting fuel delivery:
electromagnet Volt: 24 Del. quantity cm3/: 15.0045.00	İ
1000S.: (15.0045.00)	2nd speed 1/min: 375
5th speed 1/min: 1150	+ Shutoff
Shutoff	+ electromagnet Volt: 24
electromagnet Volt: 24	+

Del. quantity cm3/: 20.00...40.00 1000s.: (20.00...40.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 50.00...90.00
1000S.: (50.00...90.00)

Shutoff electromagnet:

Cut-in

min voltage Rated voltage : 20.0 : 24.0

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4 MS mm: 1.0...1.4 Ya mm: 34.8...38.8 mm: 42.4...47.6 Yb

Remarks:

: C.D.C. # 3 922 411

Note inst. in remarks column

Test scheet

Edition

: 22.04.94

replaces

Calibrating oil

: ISO-4113

Injection pump Type number

: VE6/12F1250R498-2

: 0 460 426 213

Customer Part-No. :

Customer-specific information

Customer

: CDC

Engine

: 6 BTA 5.9B

Power

KW: 108

Speed

1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil

return temp.

with thermometer : 40.00...48.00

Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 109

Openina

Pressure

bar: 207.00...210.00

Perforated plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00

x Wall thickness : 2.00 x Lenath

mm: 840

Start of delivery

Prestroke

mm: --

(from BDC): -

Start of delivery block

Piston stroke mm: 1.2

mm: +-0.04(0.06)

Outlet

Injection pump setting values

Test specifications in parentheses

Timing-device travel

Speed

1/min: 1000

Charge press. hPa: 1000

Setting value mm: 1.90...2.30

AFB/AFB

valve

Volt: -

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed

1/min: 1000

Charge press hPa: 1000

Setting value bar: 6.30...6.90

KSB/AFB

valve

Volt: -

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed

1/min: 850

Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 80.00...81.00

KSB/AFB

valve Volt: -

Shutoff

electromagnet Volt: 24

Dispersion cm3/: 5.0

1000s.: (5.0)

Full-load del. w/out charge press.:

Speed

1/min: 500

Del. quantity cm3/

1000s.: 67.00...68.00

11

KSB/AFB valve

Volt: -

Shutoff

electromagnet Volt: 24

Dispersion cm3/: 5.0

1000s.: (6.0)

Low-idle speed regulation

Speed

1/min: 350

Del. quantity cm3/

1000s.: 11.00...15.00

KSB/AFB

valve

Volt: -

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

B26

Supply-pump Speed 1/min: 1350 Charge press hPa: 1000 bar: 5.70...6.30 pressure KSB/AFB Del. quantity cm3/ 1000s.: 55.00...61.00 Volt: valve Shutoff KSB/AFB electromagnet Volt: 24 Volt: valve 1/min: 1000 2nd speed Charge press. hPa: 1000 Supply-pump Shutoff electromagnet Volt: 24 bar: 6.30...6.90 pressure Start: KSB/AFB valve Volt: -1/min: 100 Speed Shutoff Del. quantity cm3/: 65.00...95.00 electromagnet Volt: 24 3rd speed 1/min: 1250 1000s.: 65.00 mind KSB/AFB Charge press. hPa: 1000 Valve Volt: -Supply-pump Shutoff bar: 7.20...7.80 pressure electromagnet Volt: 24 KSB/AFB valve Volt: -Inspection-pump test specifications Shutoff electromagnet Volt: 24 4th speed 1/min: 500 Test specifications in parentheses Charge press. hPa: 1000 Timing-device characteristic: Supply-pump 1/min: 1250 hPa: 1000 mm: 2.20...3.00 2nd speed pressure bar: 3.90...4.50 Charge press KSB/AFB TD travel valve Volt: mm: (1.90...3.30) Shutoff KSB/AFB electromagnet Volt: 24 Volt: valve Shutoff Overlow quantity at overflow valve: electromagnet Volt: 24 3rd speed 1/min: 1000 1st speed 1/min: 500 Charge press hPa: 1000 TD travel mm: 1.90...2.30 mm: (1.40...2.80) Charge press. hPa: -Shutoff electromagnet Volt: 24 Shutoff : 41.70...86.10 Overflow electromagnet Volt: 24 quantity cm3/10s: (26.70...101.10) 1/min: 850 1/min: 1250 7. Rotacao 2nd speed Charge press. hPa: 1000 Charge press. hPa: 1000 TD travel mm: 0.60...1.40 KSB/AFB mm: (0.30...1.70) valve Volt: -KSB/AFB Shutoff valve Volt: electromagnet Volt: 24 Shutoff Overflow : 55.60...139.00 electromagnet Volt: 24 8th speed 1/min: 450 cm3/10s: (40.60...154.00) quantity Charge press. hPa: -Delivery-quant. and breakaway char.: mm: 2.00...3.00 TD travel mm: (1.80...3.20) KSB/AFB 1nd speed 1/min: 600 Volt: 24 valve Charge-air pressure-setting hPa: 450 Shutoff point electromagnet Volt: 24 mm: 6.4 LDA-stroke KSB/AFB Supply-pump pressure characteristic: valve Volt: -Shutoff 1st speed 1/min: 850 electromagnet Volt: 24 Charge press. hPa: 1000

Del. quantity cm3/:		+	1st speed 1/min: 1250
1000s.:	(69.5077.50)	+	Charge press. hPa: 1000
2nd speed 1/min:		†	Del. quantity cm3/: 0.003.00
Charge press. hPa: KSB/AFB	1000	†	1000s.: (0,003.00) Shutoff
valve Volt:	_	Ī	
Shutoff		Ι	electromagnet volt: 24 KSB/AFB
electromagnet Volt:	24	1	valve Volt: -
Del. quantity cm3/:	0.003.00	1	vacre vott.
1000s.:	(0.003.00)	+	Electr. shutoff:
3rd speed 1/min:		+	
Charge press. hPa:	1000	+	1st speed 1/min: 350
KSB/AFB		+	Charge press. hPa: -
valve Volt:	_	+	Del. quantity cm3/: 0.003.00
Shutoff	3/	†	1000s.: (0.003.00)
electromagnet Volt:		†	Shutoff
Del. quantity cm3/:	(10.0040.00)	Ī	electromagnet volt: — KSB/AFB
5th speed 1/min:	1350	Ι	valve Volt: -
Charge press. hPa:		1	vatve vott
KSB/AFB	1000	1	Idle delivery:
valve Volt:	-	1	2000 2001.701.71
Shutoff		+	1st speed 1/min: 350
electromagnet Volt:		+	KSB/AFB
Del. quantity cm3/:		+	Valve Volt: -
	(52.0064.00)	+	Shutoff
9th speed 1/min:		†	electromagnet Volt: 24
Charge press. hPa: KSB/AFB	1000	†	Del. quantity cm3/: 11.0015.00
valve Volt:	_	I	1000s.: (8.0018.00) Dispersion cm3/: 5.5
Shutoff		I	1000s.: (7.0)
electromagnet Volt:	24	1	2nd speed 1/min: 410
Del. quantity cm3/:		1	KSB/AFB
1000s.:	(77.5083.50)	+	valve Volt: -
10th speed 1/min:		+	Shutoff
Charge press. hPa:	1000	+	electromagnet Volt: 24
KSB/AFB		+	Del. quantity cm3/: 0.003.00
valve Volt: Shutoff	_	†	1000s.: (0.003.00)
electromagnet Volt:	2/	†	Automotio mtombina fuel del immu
Del. quantity cm3/:	24 81 50 - 87, 50	Ī	Automatic starting fuel delivery:
1000s.:	(79.5086.50)	I	1st speed 1/min: 130
12th speed 1/min:		1	Charge press. hPa: -
Charge press. hPa:		+	KSB/AFB
KSB/AFB		+	valve Volt: -
valve Volt:	-	+	Shutoff
Shutoff		+	electromagnet Volt: 24
electromagnet Volt:	24	+	Del. quantity cm3/: 75.00115.00
Del. quyntity cm3/:	87.0082.00	†	1000s.: (75.00115.00)
18th speed 1/min:	(78.5084.50)	†	2nd annual 1/min 200
Charge press. hPa:		Ī	2nd speed 1/min: 200
Shutoff		I	Charge press. hPa: - KSB/AFB
electromagnet Volt:	24	+	valve Volt: -
Del. quantity cm3/:	67.0068.00	+	Shutoff
1000s.:	(63.5071.50)	+	electromagnet Volt: 24
		+	Del. quantity cm3/: 60.0090.00
Mech. shutoff:		+	1000s.: (60.0090.00)
Mech. Abstellung:		+	/11 1 4/ 1 25
		+	4th speed 1/min: 100

Charge press. hPa: -

KSB/AFB

valve Volt: -

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 65.00...95.00

1000s.: (65.00...95.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8
KF mm: KOT
MS1 mm: 1.1...1.4
SVS max. mm: 3.7
LDA stroke mm: 6.4

LDA stroke mm: 6.4 mm: 34.8...38.8 Yb mm: 43.3...48.9

Remarks:

: # CDC 3 281 849

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = odgs of centrol

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet : CUM **Edition** : 22.04.94 replaces Calibrating oil : ISO-4113 Injection pump : VE6/12F1250R498-2 : 0 460 426 213 Type number Customer Part-No.: 3 282 594 Customer-specific information Customer : CDC Engine : 6 BTA 5.9B KW: 108 Power 1/min: 2500 Speed TEST BENCH REQUIREMENTS Overflow restricti: 1 463 456 303 Calibrating-oil return temp. with thermometer : 40.00...48.00 Electronically : 42.00...50.00 Inlet press., bar : 0.30...0.40 Calibrating nozzle-holder : 1 688 901 109 assembly Openina bar: 207.00...210.00 Pressure Perforated-plate diameter mm: 0.5 Test inj. tubing : 1 680 750 017 Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840 Start of delivery Prestroke mm: -(from BDC): -Start of delivery block Piston stroke mm: 1.20 mm: +-0.04(0.06)Outlet

Timing-device travel 1/min: 1000 Charge press. hPa: 1000 Setting value mm: 1.90...2.30 AFB/AFB valve Volt: -Shutoff electromagnet Volt: 12 Supply-pump pressure 1/min: 1000 Speed Charge press hPa: 1000 Setting value bar: 6.30...6.90 KSB/AFB valve Volt: -Shutoff electromagnet Volt: 12 Full-load del. with charge press.: 1/min: 850 Speed Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 80.00...81.00 KSB/AFB valve Volt: -Shutoff electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0) Full-load del. w/out charge press.: Speed 1/min: 500 Del. quantity cm3/ 1000s.: 61.50...62.50 KSB/AFB 11 valve Volt: -Shutoff electromagnet Volt: 12 cm3/: 5.0Dispersion 1000s.: (6.0) Low-idle speed regulation Speed 1/min: 350 Del. quantity cm3/ 1000s.: 11.00...15.00 KSB/AFB valve Volt: -Shutoff electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0) Full-load speed regulation

Injection-pump setting values

Test specifications in parentheses

Speed 1/min:	1350	+	Charge press. hPa:	1000
Charge press hPa:	1000	+	Supply-pump	
Del. quantity cm3/		+	pressure bar:	5.706.30
1000s.:	55.0061.00	+	KSB/AFB	3
KSB/AFB		+	valve Volt:	_
valve Volt:	-	+	Shutoff	
Shutoff		+	electromagnet Volt:	12
electromagnet Volt:	12	1	2nd speed 1/min:	
greet to to		1	Charge press. hPa:	
Start:		1	Supply-pump	1000
		1	pressure bar:	6.306.90
Speed 1/min:	100	1	KSB/AFB	0.300.70
Del. quantity cm3/:		1	valve Volt:	
mind 1000s.:	65.00	\perp	Shutoff	
KSB/AFB	03.00	1	electromagnet Volt:	12
Valve Volt:		I	3rd speed 1/min:	
Shutoff		Ι	Charge press. hPa:	
electromagnet Volt:	12	Ι		1000
etectionagnet vott.	12	Τ	Supply-pump pressure bar:	7.207.80
Inspection-pump tes	t enonifications	T		7.207.00
Test specifications		T	KSB/AFB	
rest specifications	III parentneses	T	valve Volt:	
Timing-device characteristics	.tomioùie.	+++++++++++++++++++++++++++++++++++++++	Shutoff	42
r mirrig-device charac	cteristic:	†	electromagnet Volt:	
2nd mand 1/min.	4350	T	4th speed 1/min:	
2nd speed 1/min:		†	Charge press. hPa:	1000
Charge press hPa:		Ť	Supply-pump	7 00 / 50
	2.203.00	+		3.904.50
	(1.903.30)	+	KSB/AFB	
KSB/AFB		+	valve Volt:	-
valve Volt:	-	+	Shutoff	
Shutoff		+	electromagnet Volt:	12
electromagnet Volt:	12	+		
3rd speed 1/min:		+	Overlow quantity at	overflow valve:
Charge press hPa:		+		
	1.902.30	+	1st speed 1/min:	500
	(1.402.80)	+	Charge press. hPa:	-
KSB/AFB		+	KSB/AFB	
valve Volt:		+	valve Volt:	-
Shutoff		+	Shutoff	
electromagnet Volt:		+	electromagnet Volt:	12
4th speed 1/min:		+		41.7086.10
Charge press hPa:	1009		quantity cm3/10s:	(26.70101.10)
	0.601.40	+	2nd speed 1/min:	
mm:	(0.301.70)	+	Charge press. hPa:	
KSB/AFB		+	KSB/AFB	
valve Volt:	-	+	valve Volt:	-
Shutoff		+	Shutoff	
electromagnet Volt:	12	+	electromagnet Volt:	12
5th speed 1/min:		+		55.60139.00
Charge press. hPa:	-	+		(40.60154.00)
	2.003.00	+	9.00.000	(10.00.11.12.1100)
	(1.803.20)	+	Delivery-quant. and	hreakaway char ·
KSB/AFB		4		- Consumuy Clidi i i
valve Volt:	12	1		
Shutoff		1	1nd speed 1/min:	600
electromagnet Volt:	12	1	Charge-air pressure	
- 1200, 4,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	- 100	1	point hPa:	
Supply-pump pressure	characteristic:	I	LDA-stroke mm:	
hard house becase	, undiaptor facili	1	KSB/AFB	U. T
1st speed 1/min:	850	I	valve Volt:	_
TO OPOCO TRIBITIS		7	varve voct:	

CO3

Shutoff	+
electromagnet Volt: 12	+ Mech. shutoff:
Del. quantity cm3/: 75.0076.00	+ Mech. Abstellung:
1000s.: (71.5079.50)	+
2nd speed 1/min: 1480	+ 1st speed 1/min: 1250
Charge press. hPa: 1000	+ Charge press. hPa: 1000
KSB/AFB	+ Del. quantity cm3/: 0.003.00
valve Volt: -	10008.: (0.003.00)
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet volt: 12
Del. quantity cm3/: 0.003.00	KSB/AFB
10008.: (0.003.00)	+ valve Volt: -
3rd speed 1/min: 1425	T valve volt:
Charge press. hPa: 1000	T Floor obstacle.
KSB/AFB	+ Electr. shutoff:
valve Volt: -	1 1ah anaad 1/win 750
	+ 1st speed 1/min: 350
Shutoff	+ Charge press. hPa: -
electromagnet Volt: 12	+ Del. quantity cm3/: 0.003.00
Del. quantity cm3/: 10.0040.00	1000s.: (0.003.00)
1000\$.: (10.0049.00)	+ Shutoff
5th speed 1/min: 1350	+ electromagnet volt: -
Charge press. hPa: 1000	+ KSB/AFB
KSB/AFB	+ valve Volt: -
valve Volt: -	+
Shutoff	+ Idle delivery:
electromagnet Volt: 12	+
Del. quantity cm3/: 55.0061.00	1 1st speed 1/min: 350
1000s.: (52.0064.00)	+ KSB/AFB
9th speed 1/min: 1250	+ valve Volt: -
Charge press. hPa: 1000	+ Shutoff
KSB/AFB	+ electromagnet Volt: 12
valve Volt: -	Del. quantity cm3/: 11.0015.00
Shutoff	1000S.: (8.0018.00)
electromagnet Volt: 12	
Del. quantity cm3/: 78.5082.50	
1000s.: (77.5083.50)	10008.: (7.0)
	2nd speed 1/min: 410
	+ KSB/AFB
Charge press. hPa: 1000	+ valve Volt: -
KSB/AFB	+ Shutoff
valve Volt: -	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	+ 1000s.: (0.003.00)
Del. quantity cm3/: 81.5084.50	†
1000s.: (79.5086.50)	+ Automatic starting fuel delivery:
12th speed 1/min: 850	+
Charge press. hPa: 1000	+ 1st speed 1/min: 130
KSB/AFB	+ Charge press. hPa: -
valve Volt: -	+ KSB/AFB
Shutoff	+ valve Volt: -
electromagnet Volt: 12	+ Shutoff
Del. quyntity cm3/: 81.0082.00	+ electromagnet Volt: 12
1000s.: (78.5084.50)	Del. quantity cm3/: 75.00115.00
18th speed 1/min: 500	+ 1000s.: (75.00115.00)
Charge press. hPa: -	+
KSB/AFB	2nd speed 1/min: 200
valve Volt: -	Charge press. hPa: -
Shutoff	+ KSB/AFB
electromagnet Volt: 12	+ valve Volt: -
Del. quantity cm3/: 61.5062.50	+ Shutoff
10008.: (58.0066.00)	+ electromagnet Volt: 12
(OOD),, (DO,OO,,,OO,OO)	T ecectionagnet vott: 12

Del. quantity cm3/: 60.00...90.00 1000s.: (60.00...90.00) 4th speed 1/min: 100 Charge press. hPa: -KSB/AFB valve Volt: -Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.00...95.00 1000s.: (65.00...95.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.6...3.8 K KF mm: KOT MS1 mm: 1.1...1.4 SVS max. mm: 3.7 mn: 6.4 LDA stroke mm: 34.8...38.8 mm: 43.3...48.9 Ya Yb Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and

speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet Edition : 22.04.94 replaces Calibrating oil : ISO-4113 Injection pump : VE6/12F1250R498-2 Type number : 0 460 426 213 Customer Part-No. : 3 282 595 Customer-specific information Customer : CDC Engine : 6 BTA 5.9B Power KW: 108 Speed 1/min: 2500 TEST BENCH REQUIREMENTS Overflow restricti: 1 463 456 303 Calibrating oil °C return temp. with thermometer : 40.00...48.00 Electronically : 42.00...50.00 Inlet press., bar: 0.30...0.40 Calibrating nozzle-holder : 1 688 901 109 assembly Opening | bar: 207.00...210.00 Pressure Perforated-plate diameter mm: 0.5 Test inj. tubing : 1 680 750 017 Outside diameter : 6.00 x Wall thickness : 2.00 x Lenath mm: 840 Start of delivery Prestroke mm: -(from BDC): -Start of delivery block Piston stroke mm: 1.20 mm: +-0.04(0.06)

: D

Injection-pump setting values

Test specifications in parentheses

Timing-device travel 1/min: 1000 Speed Charge press. hPa: 1000 Setting value mm: 1.90...2.30 AFB/AFB valve Volt: -Shutoff electromagnet Volt: 24 Supply-pump pressure Speed 1/min: 1000 Charge press hPa: 1000 Setting value bar: 6.30...6.90 KSB/AFB valve Volt: -Shutoff electromagnet Volt: 24 Full-load del. with charge press.: 1/min: 850 Speed Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 80.00...81.00 KSB/AFB valve Volt: -Shutoff electromagnet Volt: 24 Dispersion cm3/: 5.0 1000s.: (5.0) Full-load del. w/cut charge press.: 1/min: 500 Del. quantity cm3/ 1000s.: 61.50...62.50 KSB/AFB 11 valve Volt: -Shutoff electromagnet Volt: 24 cm3/: 5.0 Dispersion 1000s.: (6.0) Low-idle speed regulation 1/min: 350 Speed Del. quantity cm3/ 1000s.: 11.00...15.00 KSB/AFB valve Volt: -Shutoff electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0) Full-load speed regulation

Outlet

Speed 1/min:	1350	1	Charge press. hPa:	1000
Charge press hPa:		1	Supply—pump	1000
Del. quantity cm3/		1	pressure bar:	5.706.30
10005	55.0061.00	1	KSB/AFB	2.70.,.0.30
KSB/AFB	33.0301.00	I	valve Volt:	
valve Volt:	_	T	Shutoff	_
Shutoff		Ι	electromagnet Volt:	2/.
electromagnet Volt:	2/.	T		
etecti diagnet vott.	24	T	2nd speed 1/min:	
Start:		T		1000
Jiai E.		T	Supply-pump	/ 70 / 00
Spood 1/min.	100	†		6.306.90
Speed 1/min:		+	KSB/AFB	
Del. quantity cm3/:	65.0095.00	+	valve Volt:	_
mind 1000s.:	65.00	+	Shutoff	
KSB/AFB		+	electromagnet Volt:	
Valve Volt:	•	+	3rd speed 1/min:	
Shutoff		+		1000
electromagnet Volt:	24	+	Supply-pump	
		+	pressure bar:	7.207.80
Inspection pump tes		+	KSB/AFB	
Test specifications	in parentheses	+	valve Volt:	_
		+	Shutoff	
Timing device chara	cteristic:	+	electromagnet Volt:	24
		+	4th speed 1/min:	
2nd speed 1/min:	1250	+		1000
Charge press hPa:	1000	1	Supply-pump	
TD travel mm:	2.203.00	+		3.904.50
	(1.903.30)	1	KSB/AFB	0.70
KSB/AFB		1	valve Volt:	_
valve Volt:	Nan	1	Shutoff	
Shutoff		1	electromagnet Volt:	24
electromagnet Volt:	24	1	ecectionagnet voct.	4
3rd speed 1/min:		I	Overlow quantity at	overflou valve:
	1000	Ι	over tow quarterty at	over tow valve.
	1.902.30	Ι	1st speed 1/min:	500
	(1.402.80)	T		
KSB/AFB	(1.402.00)	T	Charge press. hPa: KSB/AFB	-
valve Volt:		T		
Shutoff	_	T	valve Volt:	-
electromagnet Volt:	2/.	Ť	Shutoff	21
4th speed 1/min:		T	electromagnet Volt:	24 74 70 97 40
		Ť		41.7086.10
	1000	†	quantity cm3/10s:	(26.70101.10)
	0.601.40	†	2nd speed 1/min:	
KSB/AFB	(0.301.70)	†		1000
· · · · · · · · · · · · · · · · · · ·		†	KSB/AFB	
	_	†	valve Volt:	-
Shutoff	2/	†	Shutoff	0.4
electromagnet Volt:		†	electromagnet Volt:	
5th speed 1/min:		†		55.60139.00
Charge press. hPa:		+	quantity cm3/10s:	(40.60154.00)
	2.003.00	+		
	(1.803.20)	+	Delivery-quant. and	breakaway char.:
KSB/AFB	•	+		
valve Volt:	24	+		
Shutoff		+	1nd speed 1/min:	600
electromagnet Volt:	24	+	Charge-air pressure	
		+		450
Supply-pump pressur	e characteristic:	+		6.4
		+	KSB/AFB	
1st speed 1/min:	850	+	valve Volt:	-
		•		

C07

	Shutoff		+	
	electromagnet Volt:		+	Mech. shutoff:
	Del. quantity cm3/:	75.0076.00	+	Mech. Abstellung:
	1000s.:	(71.5079.50)	1	The state of the s
	2nd speed 1/min:		1	1st speed
	Charge press. hPa:		1	Charge press. hPa: 1000
	KSB/AFB	1000	T	
			T	Del. quantity cm3/: 0.003.00
	valve Volt:	_	†	1000S.: (0.003.00)
	Shutoff	24	7	Shutoff
	electromagnet Volt:	24	+	electromagnet volt: 24
	Del. quantity cm3/:	0.003.00	+	KSB/AFB
		(0.003.00)	+	valve Volt: -
	3rd speed 1/min:	1425	+	
	Charge press. hPa:	1000	Ļ	Electr. shutoff:
	KSB/AFB		1	
	valve Volt:		1	1st speed 1/min: 350
	Shutoff	•	T	
		2/.	T	Charge press. hPa: -
	electromagnet Volt:		Ť	Del. quantity cm3/: 0.003.00
	Del. quantity cm3/:	10.0040.00	+	10008.: (0.003.00)
		(10.0040.00)	†	Snutoff
	5th speed 1/min:	1350	+	electromagnet volt: -
	Charge press. hPa:	1000	+	KSB/AFB
	KSB/AFB		+	valve Volt: -
	valve Volt:	-	+	
	Shutoff		-	Idle delivery:
	electromagnet Volt:	24	\perp	zaco decivery.
	Del. quantity cm3/:		1	1st speed 1/min: 350
		(52.0064.00)	T	KSB/AFB
			T	
	9th speed 1/min:		+	valve Volt: -
	Charge press. hPa:	1000	+	Shutoff
	KSB/AFB		+	electromagnet Volt: 24
	valve Volt:	_	+	Del. quantity cm3/: 11.0015.00
	Shutoff		+	1000S.: (8.0018.00)
1	electromagnet Volt:	24	+	Dispersion cm3/: 5.5
	Del. quantity cm3/:	78.5082.50	+	1000S.: (7.0)
	1000s.:	(77.5083.50)	+	2nd speed 1/min: 410
	10th speed 1/min:		1	KSB/AFB
	Charge press. hPa:		1	valve Volt: -
	KSB/AFB	1000	T	Shutoff
	valve Volt:	_	T	
	Valve Volt:	_	†	electromagnet Volt: 24
	Shutoff	2/	7	Del. quantity cm3/: 0.003.00
	electromagnet Volt:		+	1000S.: (0.003.00)
	Del. quantity cm3/:	81.5084.50	+	
	10005.:	(79.5086.50)	+	Automatic starting fuel delivery:
	12th speed 1/min:		+	-
1	Charge press. hPa:	1000	+	1st speed 1/min: 130
	KSB/AFB		+	Charge press. hPa: -
•	valve Volt:		1	KSB/AFB
	Shutoff		1	valve Volt: -
	electromagnet Volt:	24	1	Shutoff
Ì	Del. quyntity cm3/:	81 nn 92 nn	T	
	4000c	(70 En 0/ En)	T	electromagnet Volt: 24
		(78.5084.50)	T	Del. quantity cm3/: 75.00115.00
	18th speed 1/min:		+	1000s.: (75.00115.00)
	Charge press. hPa:	_	+	
	KSB/AFB		+	2nd speed 1/min: 200
	valve Volt:	-	+	Charge press. hPa: -
,	Shutoff		+	KSB/AFB
(electromagnet Volt:	24	+	valve Volt: -
	Del. quantity cm3/:		+	Shutoff
		(58.0066.00)	+	electromagnet Volt: 24
	,		-	

Del. quantity cm3/: 60.00...90.00 1000\$.: (60.00...90.00)

4th speed 1/min: 100 Charge press. hPa: -

KSB/AFB

valve Volt: -

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 65.00...95.00 1000s.: (65.00...95.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 : 24.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3.6...3.8 K KF mm: KOT MS1 mm: 1.1...1.4 mm: 3.7 SVS max. LDA stroke mm: 6.4 Ya

mm: 34.8...38.8 mm: 43.3...48.9 Yb

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control Lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Note inst. in remarks column

Test scheet

Edition

: 22.04.94

replaces

Calibrating oil

: ïso-4113

Injection pump

: VE6/12F1100R579

Type number

: 0 460 426 233

Customer Part-No. :

Customer-specific information

Customer

: FNH-GEOTECH

Engine

: 7.5 L NA/DI

Power

KW: 90

Speed

1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil

return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 689 901 110

Opening

Pressure

bar: 250.00...253.00

Perforated plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Start of delivery Prestroke mm: -

(from BDC): -

Start of delivery block

Piston stroke mm: 1.0

mm: +-0.04(0.06)

Outlet

: B

Injection-pump setting values

Test specifications in parentheses

C10

Timing-device travel

Speed

1/min: 600

Setting value mm: 1.00...1.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed

1/min: 600

Setting value bar: 5.00...5.40

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed

1/min: 800

Del. quantity cm3/

1000s.: 73.50...74.50

Shutoff

electromagnet Volt: 12

Dispersion cm3/: 5.0

1000s.: (5.0)

Low-idle speed regulation

Speed

1/min: 375

Del. quantity cm3/

1000s.: 14.50...15.50

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 5.0

1000s.: (5.0)

Full-load speed regulation

Speed

1/min: 1180

Del. quantity cm3/ 1000s.: 52.00...58.00

Shutoff:

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 50.00...110.00

1000s.: 50.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed

1/min: 750

TD travel

mm: 1.40...2.20

mm: (1.10...2.50)

Shutoff electromagnet Volt: 3rd speed 1/min:	600	‡	Del. quantity cm3/: 52.0058.00 1000S.: (47.0063.00) 8th speed 1/min: 1150
mm:	1.001.40 (0.501 <i>.9</i> 0)	‡	Shutoff electromagnet Volt: 12
Shutoff electromagnet Volt:	12	‡	Del. quantity cm3/: 50.0060.00 1000s.: -
4th speed 1/min: TD travel mm:	0.501.30	‡	9th speed 1/min: 1100 Shutoff
Shutoff	(0.201.60)	‡	electromagnet Volt: 12 Del. quantity cm3/: 67.0071.00
electromagnet Volt: 5th speed 1/min:	1100	‡	1000s.: (65.5072.50) 12th speed 1/min: 800
nn:	2.002.80 (1.703.10)	‡	Shutoff electromagnet Volt: 12
Shutoff electromagnet Volt:	12	‡	Del. quyntity cm3/: 73.5074.50 1000s.: (71.0077.00)
Supply-pump pressure	e characteristic:	+	18th speed 1/min: 600 Shutoff
1st speed 1/min:	1100	‡	electromagnet Volt: 12 Del. quantity cm3/: 64.5065.50
	7.207.80	‡	1000s.: (62.0068.00) 20th speed 1/min: 450
Shutoff electromagnet Volt:		‡	Shutoff electromagnet Volt: 12
2nd speed 1/min: Supply-pump		‡	Del. quantity cm3/: 54.0060.00 1000s.: (52.0062.00)
Shutoff	5.005.40	‡	Mech. shutoff:
electromagnet Volt: 3rd speed 1/min: Supply-pump		†	Electr. shutoff:
pressure bar: Shutoff	4.204.80	+	1st speed 1/min: 375 Del. quantity cm3/: 0.003.00
electromagnet Volt:	12	+	1000s.: (0.003.00) Shutoff
Overlow quantity at	overflow valve:	+	electromagnet volt: -
1st speed 1/min: Shutoff	450	+	Idle delivery:
electromagnet Volt:	12 75.00119.50	+	1st speed 1/min: 375 Shutoff
	(60.00133.50)	+	electromagnet Volt: 12 Del. quantity cm3/: 14.5015.50 1000s.: (10.0020.00)
electromagnet Volt:	12 97.30180.70	<u> </u>	Dispersion cm3/: 5.0 1000s.: (5.0)
quantity cm3/10s:		1	2nd speed 1/min: 460 Shutoff
Delivery-quant. and	breakaway char.:	+	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S:: (0.003.00)
2nd speed 1/min: Shutoff	1260	1	Automatic starting fuel delivery:
electromagnet Volt:		+	
	(0.003.00)	Ŧ	1st speed 1/min: 200 Shutoff
5th speed 1/min: Shutoff		‡	electromagnet Volt: 12 Del. quantity cm3/: 85.00145.00
electromagnet Volt:	12	+	1000s.: -

1/min: 350 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 51.00...81.00 1000s.: -

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 90.00...150.00 1000s.: -

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.6...3.8

KF mm: KOT

MS mm: 1.2...1.6 mm: 32.8...34.8 mm: 41.4...48.0 Ya Yb

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet Edition : 22.04.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R584 Type number : 0 460 426 235

Customer Part-No. :

Customer-specific information Customer : FNH-GEOTECH

: 7.5 L TC Engine

KW: 124 Power Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 110

Opening

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block Piston stroke mm: 1.0

mm: +-0.04(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel

1/min: 700 Speed

Charge press. hPa: 1500 Setting value mm: 1.30...1.70

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 700 Charge press hPa: 1500 Setting value bar: 5.40...6.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 800 Speed Charge press. hPa: 1500

Del. quantity cm3/ 1000s.: 98.50...99.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 74.50...75.50

Shutoff

electromagnet Volt: 12 cm3/: 5.0 Dispersion 1000S.: (5.0)

Low-idle speed regulation

Speed 1/min: 375 Del. quantity cm3/

1000s.: 14.00...18.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1250

Del. quantity cm3/ 1000s.: 46.00...52.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

C13

hal	
Del. quantity cm3/: 90.00150.00	+ Shutoff
mind 1000s.: 90.00	+ electromagnet Volt: 12
Shutoff	+ Overflow : 75.00119.50
electromagnet Volt: 12	† quantity cm3/10s: (60.00134.50)
<u>-</u>	+ 2nd speed 1/min: 1150
Inspection-pump test specifications	Charge press. hPa: 1500
Test specifications in parentheses	+ Shutoff
rest specifications in parentheses	
Timina davidas abancas atas t	+ electromagnet Volt: 12
Timing-device characteristic:	+ Overflow : 97.30180.70
	+ quantity cm3/10s: (82,30195.70)
2nd speed 1/min: 800	+
Charge press hPa: 1500	+ Delivery-quant. and breakaway char.:
TD travel mm: 1.602.40	The state of the s
mm: (1.302.70)	
Shutoff	Ind speed 1/min: 650
electromagnet Volt: 12	+ Charge-air pressure-setting
3rd speed 1/min: 700	+ point hPa: 600
Charge press hPa: 1500	+ Shutoff
TD travel mm: 1.301.70	+ electromagnet Volt: 12
mm: (0.802.20)	Del. quantity cm3/: 90.0092.00
Shutoff	10005.: (88.5094.50)
electromagnet Volt: 12	
/th amond 4/min. 400	2nd speed 1/min: 1300
4th speed 1/min: 600	+ Charge press. hPa: 1500
Charge press hPa: 1500	+ Shutoff
TD travel mm: 0.401.20	+ electromagnet Volt: 12
mm: (0.101.50)	+ Del. quantity cm3/: 0.003.00
Shutoff	+ 1000s.: (0.003.00)
electromagnet Volt: 12	+ 3rd speed 1/min: 1250
5th speed 1/min: 1150	
	Charge press. hPa: 1500
Charge press. hPa: 1500	+ Shutoff
TD travel mm: 2.002.80	+ electromagnet Volt: 12
mm: (1.703.10)	+ Del. quantity cm3/: 46.0052.00
Shutoff	+ 1000s.: (43.0055.00)
electromagnet Volt: 12	+ 4th speed 1/min: 1200
	Charge press. hPa: 1500
Supply-pump pressure characteristic:	- Shutoff
supply pump pressure characteristic.	
1st smooth Almin, AACO	+ electromagnet Volt: 12
1st speed 1/min: 1150	+ Del. quantity cm3/: 68.0098.00
Charge press. hPa: 1500	+ 1000s.: -
Supply-pump	+ 5th speed 1/min: 1150
pressure bar: 7.608.20	+ Charge press. hPa: 1500
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagner Volt: 12
2nd speed 1/min: 700	Del. quantity cm3/: 82.5085.50
Charge press. hPa: 1500	
	1000s.: (80.5087.50)
Supply-pump	+ 6th speed 1/min: 500
pressure bar: 5.406.00	+ Charge press. hPa: 1500
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
3rd speed 1/min: 500	+ Del. quantity cm3/: 117.00123.00
Charge press. hPa: 1500	+ 1000s.: (115.00125.00)
Supply-pump	+ 8th speed 1/min: 800
pressure bar: 4.405.00	
Shutoff	+ Charge press. hPa: 1500
	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
	+ Del. quantity_cm3/: 98.5099.50
Overlow quantity at overflow valve:	† 1000s.: (96.00102.00)
	+ 9th speed 1/min: 500
1st speed 1/min: 500	+ Charge press. hPa: -
Charge press. hPa: 1500	- In an
g- j	ı

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 74.50...75.50 1000s.: (71.00...79.00) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 14.00...18.00 1000s.: (11.00...21.00) Dispersion cm3/: 5.0 1000s.: (5.0) 1/min: 450 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1st speed 1/min: 200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...95.00 1000s.: -4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 90.00...150.00 1000s.: -Shutoff electromagnet: Cut-in : 10.0 min voltage Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.6...3.8

mm: KOT

mm: 1.2...1.6 mm: 32.8...34.8 mm: 45.0...51.0 Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

C15

Remarks:

KF

MS Ya Yb

Note inst. in remarks column

Test scheet : FOR

Edition : 22.04.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R584-1

Type number : 0 460 426 237

Customer Part-No. :

Customer-specific information Customer : FNH-GEOTECH

Engine : 7.5 L TC

KW: 105 Power 1/min: 2200 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 110 assembly

Opening |

bar: 250.00...253.00 Pressure

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length into: 840

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block Piston stroke mm: 1.0

mm: +-0.04(0.06)

Outlet : B

Injection-pump setting values Test specifications in parentheses Timing-device travel

1/min: 700 Speed

Charge press. hPa: 1500 Setting value mm: 1.00...1.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 700 Charge press hPa: 1500

Setting value bar: 5.40...6.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800 Charge press. hPa: 1500

Del. quantity cm3/

1000s.: 84.50...85.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 60.50...61.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1180

Del. quantity cm3/

1000s.: 45.50...51.50

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

C16

Del. quantity cm3/: 90.00150.00	+ Shutoff
mind 1000s.: 90.00	electromagnet Volt: 12
Shutoff	4 Overflow : 75.00119.50
electromagnet Volt: 12	+ quantity cm3/10s: (60.00134.50)
	+ 2nd speed 1/min: 1100
Inspection pump test specifications	+ Charge press. hPa: 1500
Test specifications in parentheses	+ Shutoff
•	electromagnet Volt: 12
Timing-device characteristic:	- Overflow : 97.30180.70
thining action character is tie.	quantity cm3/10s: (82.30195.70)
2nd speed 1/min: 800	T quantity this/ (05: (32.39(93.7())
	T and
Charge press hPa: 1500	<pre>+ Delivery-quant. and breakaway char.:</pre>
TD travel mm: 1.202.00	+
mm: (0.902.30)	+
Shutoff	+ 1nd speed 1/min: 650
electromagnet Volt: 12	- Charge-air pressure-setting
3rd speed 1/min: 700	+ point hPa: 600
Charge press hPa: 1500	Shutoff
TD travel mm: 1.001.40	+ electromagnet Volt: 12
mm: (0.501.90)	+ Del. quantity cm3/: 76.0077.00
Shutoff	1000s.: (73.5079.50)
electromagnet Volt: 12	+ 2nd speed 1/min: 1210
4th speed 1/min: 600	Charge press. hPa: 1500
Charge press hPa: 1500	+ Shutoff
TD travel mm: 0.201.00	
	+ electromagnet Volt: 12
mm: (0.001.30)	+ Del. quantity cm3/: 0.003.00
Shutoff	+ 1000s.: (0.003.00)
electromagnet Volt: 12	+ 3rd speed 1/min: 1180
5th speed 1/min: 1100	+ Charge press. hPa: 1500
Charge press. hPa: 1500	Shutoff
TD travel mm: 2.002.80	
	+ electromagnet Volt: 12
mm: (1.703.10)	+ Del. quantity cm3/: 45.5051.50
Shutoff	+ 1000s.: (42.5054.50)
electromagnet Volt: 12	+ 4th speed 1/min: 1150
	+ Charge press. hPa: 1500
Supply-pump pressure characteristic:	+ Shutoff
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	+ electromagnet Volt: 12
1st speed 1/min: 1100	+ Del. quantity cm3/: 53.0083.00
Charge press. hPa: 1500	† 1000s.: -
Supply-pump	+ 5th speed 1/min: 1100
pressure bar: 7.408.00	+ Charge press. hPa: 1500
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
2nd speed 1/min: 700	+ Del. quantity cm3/: 74.0077.00
Charge press. hPa: 1500	1000s.: (72.0079.00)
Supply-pump	
	+ 6th speed 1/min: 500
pressure bar: 5.406.00	+ Charge press. hPa: 1500
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
3rd speed 1/min: 500	+ Del. quantity cm3/: 99.00105.00
Charge press. hPa: 1500	† 1000s.: (97.00107.00)
Supply-pump	+ 8th speed 1/min: 800
pressure bar: 4.304.90	Charge press. hPa: 1500
Shutoff	
	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
	+ Del. quantity_cm3/: 84.5085.50
Overlow quantity at overflow valve:	1000s.: (82.0088.00)
	+ 9th speed 1/min: 500
1st speed 1/min: 500	+ Charge press. hPa: -
Charge press. hPa: 1500	Torial go pi coo. Ili a.
30 Pr 0001 Til G. 1300	1

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 60.50...61.50 1000s.: (58.00...64.00) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375
Del. quantity_cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 10.00...14.00
1000S.: (7.00...17.00)
Dispersion cm3/: 5.0
1000S.: (5.0) 1/min: 450 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1/min: 200 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 32.00...72.00 1000s.: -4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 90.00...150.00 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.6...3.8 mm: KOT K KF MS mm: 1.2...1.6 mm: 32.8...34.8 Ya mm: 40.7...47.3 Yb

Yb = Distance between VE Mange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

C18

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet **Fdition** : 22.04.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R579-1 Type number : 0 460 426 238

Customer Part-No. :

Customer-specific information Customer : FNH-GEOTECH

: 7.5 L TC Engine

Power KW: 82 1/min: 2200 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 110

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -

(from BDC): -

Start of delivery block Piston stroke mm: 1.0

mm: +-0.04(0.06)

Outlet : B

Injection-pump setting values Test specifications in parentheses Timing-device travel

Speed 1/min: 800

Setting value mm: 1.00...1.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 800

Setting value bar: 6.00...6.40

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1050 Speed

Del. quantity cm3/

1000s.: 64.50...65.50

Shutoff

electromagnet Volt: 12 cm3/: 5.0 Dispersion 1000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 14.50...15.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000\$:: (5.0)

Full-load speed regulation

Speed 1/min: 1180

Del. quantity cm3/

1000s.: 32.00...38.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 85.00...145.00

1000s.: 85.G0

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 900

mm: 1.40...2.20 TD travel

mm: (1.10...2.50)

Shutoff	+ 1	Del. quantity cm3/: 32.0038.00	
electromagnet Volt: 12	+	1000s.: (27.0043.00))
3rd speed 1/min: 800		8th speed	
TD travel mm: 1.001.40		Shutoff	
mm: (0.501.90)		electromagnet Volt: 12	
Shutoff	+ 1	Del. quantity cm3/: 54.0064.00	
electromagnet Volt: 12	+ ,	1000s.: -	
4th speed 1/min: 600		9th speed 1/min: 1100	
TD travel mm: 0.000.80		Shutoff	
mm: (0.001.40) Shutoff		elentromagnet Volt: 12	
	† '	Del. quantity cm3/: 61.5065.50	
electromagnet Volt: 12 5th speed 1/min: 1100	† ,	10005.: (60.0067.00))
TD travel mm: 2.002.80		12th speed 1/min: 1050	
mm: (1.703.19)		Shutoff	
Shutoff		electromagnet Volt: 12	
electromagnet Volt: 12	T '	Del. quyntity cm3/: 64.5065.50	٠,
etectromagnet vott. 12	T	1000s.: (62.0068.00	ננ
Supply-pump pressure characteristic:		15th speed 1/min: 800	
supply pump pressure characteristic.		Shutoff	
1st speed 1/min: 1100		electromagnet Volt: 12	
Supply—pump	I '	Del. quantity cm3/: 69.5073.50 1000S.: (68.0075.00	11
pressure bar: 7.307.80	I	18th speed	"
Shutoff		Shutoff	
electromagnet Volt: 12		electromagnet Volt: 12	
2nd speed 1/min: 800		Del. quantity cm3/: 66.5067.50	
Supply-pump	1	1900s.: (64.0070.00	11
pressure bar: 6.006.40		20th speed 1/min: 450	,,
Shutoff		Shutoff	
electromagnet Volt: 12	1	electromagnet Volt: 12	
		cooli bilagilor vocc. IE	
3rd speed 1/min: 450			
3rd speed 1/min: 450 Supply-pump		Del. quantity cm3/: 50.0056.00	1)
Supply-pump))
Supply-pump pressure bar: 4.204.80	† (Del quantity cm3/: 50.0056.00 1000s.: (48.5057.50))
Supply-pump pressure bar: 4.204.80 Shutoff	† (Del. quantity cm3/: 50.0056.00))
Supply-pump pressure bar: 4.204.80	+ 1	Del quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff:))
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12	+ 1	Del quantity cm3/: 50.0056.00 1000s.: (48.5057.50))
Supply-pump pressure bar: 4.204.80 Shutoff	+ + + + + + + + + + + + + + + + + + + +	Del. quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff:))
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12		Del. quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375))
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve:		Del. quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00))
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff		Del quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed))
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450		Del. quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff))
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50)		Del quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed))
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100		Del. quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff))
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff		Del quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff Electromagnet volt: -))
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12		Del quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff Electromagnet volt: -))
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70		Del. quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff Electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff))
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12		Del. quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff Electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff Electromagnet Volt: 12))
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70)		Del quantity cm3/: 50.0056.00 1000s.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff Electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff Electromagnet Volt: 12 Del. quantity cm3/: 14.5015.50	
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70		Del quantity cm3/: 50.0056.00 1000s.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff Electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff Electromagnet Volt: 12 Del. quantity cm3/: 14.5015.50 1000s.: (10.0020.00	
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70)		Del quantity cm3/: 50.0056.00 1000s.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff Electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff Electromagnet Volt: 12 Del. quantity cm3/: 14.5015.50 1000s.: (10.0020.00) Dispersion cm3/: 5.0	
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70) Delivery-quant. and breakaway char.:		Del quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff Electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff Electromagnet Volt: 12 Del. quantity cm3/: 14.5015.50 1000S.: (10.0020.00) Dispersion cm3/: 5.0 1000S.: (5.0)	
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1260		Del. quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff Electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff Electromagnet Volt: 12 Del. quantity cm3/: 14.5015.50 1000S.: (10.0020.00) Dispersion cm3/: 5.0 1000S.: (5.0) 2nd speed 1/min: 450	
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1260 Shutoff		Del. quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: Ist speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff Electromagnet volt: - Idle delivery: Ist speed 1/min: 375 Shutoff Electromagnet Volt: 12 Del. quantity cm3/: 14.5015.50 1000S.: (10.0020.00 Dispersion cm3/: 5.0 1000S.: (5.0) 2nd speed 1/min: 450 Shutoff	
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1260 Shutoff electromagnet Volt: 12		Del. quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: Ist speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff Electromagnet volt: - Idle delivery: Ist speed 1/min: 375 Shutoff Electromagnet Volt: 12 Del. quantity cm3/: 14.5015.50 1000S.: (10.0020.00 Dispersion cm3/: 5.0 1000S.: (5.0) Plod speed 1/min: 450 Shutoff Electromagnet Volt: 12	
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1260 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00		Del. quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff Electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff Electromagnet Volt: 12 Del. quantity cm3/: 14.5015.50 1000S.: (10.0020.00 Dispersion cm3/: 5.0 1000S.: (5.0) End speed 1/min: 450 Shutoff Electromagnet Volt: 12 Del. quantity cm3/: 0.003.00	
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1260 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)		Del. quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: Ist speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff Electromagnet volt: - Idle delivery: Ist speed 1/min: 375 Shutoff Electromagnet Volt: 12 Del. quantity cm3/: 14.5015.50 1000S.: (10.0020.00 Dispersion cm3/: 5.0 1000S.: (5.0) Plod speed 1/min: 450 Shutoff Electromagnet Volt: 12	
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1260 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S: (0.003.00) 5th speed 1/min: 1180		Del quantity cm3/: 50.0056.00 1000S: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed	
Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Overflow : 75.00119.50 quantity cm3/10s: (60.00134.50) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 97.30180.70 quantity cm3/10s: (82.30195.70) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1260 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)		Del. quantity cm3/: 50.0056.00 1000S.: (48.5057.50 Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff Electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff Electromagnet Volt: 12 Del. quantity cm3/: 14.5015.50 1000S.: (10.0020.00 Dispersion cm3/: 5.0 1000S.: (5.0) End speed 1/min: 450 Shutoff Electromagnet Volt: 12 Del. quantity cm3/: 0.003.00	

1st speed 1/min: 200

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 80.00...140.00 1000s.: -

2nd speed 1/min: 350

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 45.00...75.90

1000s.: (45.00...75.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 85.00...145.00

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.6...3.8 K

KF mm: KOT

mm: 1.2...1.6 mm: 32.8...34.8 MS Ya

mm: 41.5...48.1 Yb

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control Lever on drive end

Yb = Distance between VE flange and

speed-control lever in rated speed position

Measurement point = edge of control

lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : FIA 1.9 H2 Edition : 29.04.94 : 15,10.91 replaces Calibrating oil : ISO-4113

Injection pump : VE4/8F2300R335 Type number : 0 460 484 023

Customer Part-No. :

Customer-specific information Customer : FIAT-AUTO

: M704 DA 13.0 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1600 Speed

Setting value mm: 5.40...5.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1600 Speed

Setting value bar: 5.00...5.60

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1600

Del. quantity cm3/

1000s.: 22.30...23.30

Shutoff

electromagnet Volt: 12 cm3/: 2.0 Dispersion 1000s.: (2.5)

Low-idle speed regulation

Speed 1/min: 390

Del. quantity cm3/ 1000s.: 8.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Full-load speed regulation

1/min: 2700 Speed

Del. quantity cm3/

1000s.: 10.00...16.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 27.00...53.00

1000s.: 27.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-gty.dif.measurement:

1/min: 1500 Speed

cm3/Inj.-qty.

difference 1000s.: -7.00..-13.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1. Speed 1/min: 1500

TD-travel

difference mm: -0.90..-1.10

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 5th speed 1/min: 2700 1/min: 2500 2nd speed TD travel mm: 8.60...9.40 5th speed mm: (8.30...9.70) Shutoff Shutoff electromagnet Volt: 12
3rd speed 1/min: 1600
TD travel mm: 5.40...5.80
mm: (4.90...6.30) Shutoff Shutoff electromagnet Volt: 12 1/min: 800 4th speed mm: 1.60...2-/7 TD travel 10th speed mm: (1.30...2.70) Shutoff electromagnet Volt: 12
Del. quantity cm3/: 22.30...24.70
1000s.: (21.20...25.80) Shutoff electromagnet Volt: 12 5th speed 1/min: 2000 TD travel mm: 7.60...8.40 1/min: 1600 12th speed mm: (7.30...8.70) Shutoff Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12
Del. quantity cm3/: 16.30...19.30
1000S.: (14.80...20.80) 1/min: 2500 1st speed Supply-pump pressure bar: 7.80...8.40 Shutoff electromagnet Volt: 12 2nd speed 1/min: 1600 Mech. shutoff: Supply-pump Electr. shutoff: pressure bar: 5.00...5.60 Shutoff 1st speed 1/min: 390 electromagnet Volt: 12 3rd speed 1/min: 600 Del. quantity cm3/: 0.00...3.00 3rd speed 1000s.: (0.00...3.00) Supply-pump Shutoff pressure bar: 2.20...2.30 electromagnet volt: -Shutoff electromagnet Volt: 12 Idle delivery: Overlow quantity at overflow valve: 1st speed 1/min: 390 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 8.00...12.00
1000S.: (5.00...15.00)
Dispersion cm3/: 2.5 1/min: 600 1st speed Shutoff electromagnet Volt: 12 Overflow : 41.70...83.40 cm3/10s: (26.70...98.40) 1/min: 2500 1000s.: (2.5) 1/min: 440 quantity 2nd speed 2nd speed Shutoff Shutoff electromagnet Volt: 12 : 55.60...138.00 Overflow cm3/10s: (40.60...153.00) quantity Delivery-quant. and breakaway char.: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 3rd speed 1/min: 2850 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12 Automatic starting fuel delivery:

1/min: 400 1st speed Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 25.00...35.00 1000s.: (25.00...35.00)

2nd speed 1/min: 500 Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 13.00...23.00 1000S.: (13.00...23.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 27.00...53.00 1000s.: (27.00...53.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 mm: 5.1...5.5 mm: 1.3...1.7 mm: 37.2...39.2 mm: 42.8...51.5 K KF MS Ya Yb

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : VWW

Edition : 29.04.94

replaces Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R66-15 Type number : 0 460 494 165

Customer Part-No. :

Customer-specific information

Customer : VWB

Engine : 1.6L SANTANA/GOL

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-nolder

assembly : 1 688 901 000

Opening

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00

x Wall thickness : 2.00 x Length min: 840

Start of delivery Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed

Setting value mm: 2.90...3.30

Shutoff

electromagnet Volt: 12

Supply—pump pressure

1/min: 1500 Speed

Setting value bar: 4.90...5.50

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500

Del. quantity cm3/

1000s.: 33.00...34.00

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion

1000s.: (3.0)

Low-idle speed regulation

1/min: 475 Speed

Del. quantity cm3/ 1000s.: 6.50...10.5

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000S.: (3.0)

Full-load speed regulation

1/min: 2600

Del. quantity cm3/

1000s.: 11.50...17.50

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 35.00...65.00 mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2400

TD travel mm: 6.10,..6.90 mm: (5.80...7.20) electromagnet Volt: 12 2nd speed 1/min: 1500 mm: 2.90...3.30 mm: (2.40...3.80)

Shutoff

electromagnet Volt: 12

1/min: 1000 3rd speed

TD travel mm: 1.20...2.00

mm: (0.90...2.30)

Shutoff

electromagnet Volt: 12

C25

Supply-pump pressure chara	acteristic:	Mech. shutoff:
1st speed 1/min: 2400 Supply-pump	1	Electr. shutoff:
pressure bar: 7.00 Shutoff	7.60	1st speed
electromagnet Volt: 12 2nd speed 1/min: 1500	‡	1000s.: (0.003.00) Shutoff
Supply-pump pressure bar: 4.90 Shutoff	5.50	electromagnet volt: -
electromagnet Volt: 12	‡	Idle delivery:
3rd speed 1/min: 400 Supply-pump	1	1st speed 1/min: 475 Shutoff
pressure bar: 2.10	2.70	electromagnet Volt: 12 Del. quantity cm3/: 6.5010.50
electromagnet Volt: 12	İ	1000s.: (4.5012.50) Dispersion cm3/: 2.0
Overlow quantity at overfl	low valve:	1000s.: (3.0) 2nd speed 1/min: 650
1st speed 1/min: 600 Shutoff	‡	Shutoff electromagnet Volt: 12
electromagnet Volt: 12 Overflow : 41.70.	83.40	Del. quantity cm3/: 0.006.00 1000s.: -
quantity cm3/10s: (27.80 2nd speed 1/min: 2400		3rd speed 1/min: 1200 Shutof?
Shutoff electromagnet Volt: 12	‡	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00
Overflow : 55.60. quantity cm3/10s: (40.60	138.90 153.90) +	1000s.: -
Delivery-quant. and breaka	away char.:	Automatic starting fuel delivery:
	‡	1st speed 1/min: 500 Shutoff
1nd speed 1/min: 2700 Shutoff	‡	electromagnet Volt: 12 Del. quantity cm3/: 15.0025.00
electromagnet Volt: 12 Del. quantity cm3/: 2.00	10.00	1000s.: -
2nd speed 1000s.: (1.00. 1/min: 2600	11.90)	2nd speed 1/min: 400 Shutoff
Shutoff electromagnet Volt: 12	‡	electromagnet Volt: 12 Del. quantity cm3/: 33.0043.00
Del. quantity cm3/: 11.50.)18.50)	1000S.: ~
3rd speed 1/min: 2400 Shutoff	‡	4th speed 1/min: 100 Shutoff
electromagnet Volt: 12 Del. quantity cm3/: 27.30.		electromagnet Volt: 12 Del. quantity cm3/: 35.0065.00
4th speed 1/min: 1500	J3U.8U) +	1000S.: -
Shutoff electromagnet Volt: 12	Ţ	Shutoff electromagnet:
Del. quantity cm3/: 33.00. 1000s.: (31.30	34.00 +)35.70) +	Cut-in min voltage : 10.0
5th speed 1/min: 600 Shutoff	‡	Rated voltage : 12.0
electromagnet Volt: 12 Del. quantity cm3/: 22.50.	25.00	Mounting and assembly dimensions:
1000s.: (20.50)26.50)	Designation K mm: 3.23.4

KF mm: 5.6...6.0 MS mm: 1.2...1.6 SVS max. mm: 1.8 Ya mm: 38.6...40.6 Yb mm: 50.4...63.3

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet Edition : 28.04.94 : 02.07.92 replaces Calibrating oil : ISO-4113 Injection pump : VE4/9F2500R341 Type number : 9 460 620 003 Customer-specific information Customer : ISUZU Engine : 4EC1-BADT TEST BENCH REQUIREMENTS Overflow restricti: 1 463 456 344 Calibra ng-oil return no. with lim.mometer : 40...48 Electronically : 42...50 Inlet press., bar: 0.35 Calibrating nozzle-holder assembly : 1 688 901 022 Opening | Pressure bar: 130...133 Test inj. tubing : 1 680 750 073 Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450 Start of delivery Prestroke mm: -(from BDC): -Injection-pump setting values Test specifications in parentheses Timing-device travel 1/min: 1250 Charge press. hPa: 700 Setting value mm: 2.80...3.20 Shutoff

hPa: 700 Charge press Setting value bar: 3.80...4.40 Shutoff electromagnet Volt: 12 Full-load del. with charge press.: Speed 1/min: 1500 Charge press. hPa: 700 Del. quantity cm3/ 1000s.: 46.90...47.90 Shutoff electromagnet Volt: 12 Dispersion cm3/: -1000s.: (2.5) Full-load del. w/out charge press.: Speed 1/min: 600 Det. quantity cm3/ 1000s.: 33.80...37.80 Shutoff electromagnet Volt: 12 Low-idle speed regulation 1/min: 425 Del. quantity cm3/ 1000s.: 8.50...12.50 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0) Full-load speed regulation Speed 1/min: 425 Charge press hPa: 700 Del. quantity cm3/ 1000s.: 19.60...25.60 Shutoff electromagnet Volt: 12 Start: Speed 1/min: 100 Del. quantity cm3/: 38.00...70.00 1000s.: 38.00 mind Shutoff electromagnet Volt: 12 Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1250 hPa: 700 Speed Charge press Inj.-qty. cm3/ difference 1000s.: 16.00...24.00 Shutoff electromagnet Volt: 12

Speed

electromagnet Volt: 12

1/min: 1250

Supply-pump pressure

TD-travel dif.measu correttore anticipo 1.Speed 1/min: Charge press hPa:	iniezione (SV) 1250	‡		75.00119.50
TD-travel	1.401.60	Ŧ	quantity cm3/10s: 2nd speed 1/min:	2500
Shutoff		Ŧ	Charge press. hPa: Shutoff	
electromagnet Volt:		Ŧ	electromagnet Volt: Overflow	94.50139.00
Inspection pump tes Test specifications	in parentheses	‡	quantity cm3/10s:	
Timing-device chara	cteristic:	Ŧ	Delivery-quant. and	breakaway char.:
1st speed 1/min:	520	Ī	1nd speed 1/min:	1000
Charge press hPa:		1	Charge-air pressure	
	0.301.10	1	point hPa:	340
	(0.001.40)	+	Shutoff	
electromagnet Volt:	12	+	electromagnet Volt:	12
2nd speed 1/min:	1250	+	Del. quantity cm3/:	
Charge press hPa:	700	+		(41.3046.30)
TD travel mm:	2.803.20	+	2nd speed 1/min:	
	(2.303.70)	+	Charge press. hPa:	
Shutoff		+	Shutoff	
electromagnet Volt:	12	+	electromagnet Volt:	12
3rd speed 1/min:	2600	+	Del. quantity cm3/:	
Charge press hPa:	700	1	1000s.:	(0.0015.00)
TD travel mm:	5.606.40	+	3rd speed 1/min:	
	(5.306.70)	+	Charge press. hPa:	700
Shutoff		+	Shutoff	
electromagnet Volt:	12	+	electromagnet Volt:	12
4th speed 1/min:	2250	+	Del. quantity cm3/:	
Charge press hPa:	700	+		(18.6026.60)
TD travel mm:		+	4th speed /1/min:	
mn:	(6.307.70)	+	Charge press. hPa:	
		+	Shutoff	
Supply-pump pressure	e characteristic:	+	electromagnet Volt:	12
		+	Del. quantity cm3/:	
1st speed 1/min:	620	+		(26.1034.10)
Charge press. hPa:	700	+	5th speed 1/min:	
Supply-pump		+	Charge press. hPa:	
	2.202.80	+	Shutoff	
Shutoff		+	electromagnet Volt:	12
electromagnet Volt:	12	-	Del. quantity cm3/:	
2nd speed 1/min:	1250	+	1000s.:	(33.3037.90)
Charge press. hPa:	700	+	6th speed 1/min:	2300
Supply-pump		+	Charge press. hPa:	= · ·
pressure bar:	2.304.40	+	Shutoff	,
Shutoff		+	electromagnet Volt:	12
electromagnet Volt:	12	+	Del. quantity cm3/:	
3rd speed 1/min:	2250	+	1000s.:	(43.8048.20)
Charge press. hPa:		+	7th speed 1/min:	
Supply-pump		+	Charge press. hPa:	
	6.206.80	+	Shutoff	-
Shutoff		+	electromagnet Volt:	12
electromagnet Volt:	12	+	Del. quantity cm3/:	
		+		(43.8047.80)
Overlow quantity at	overflow valve:	İ	8th speed 1/min: Charge press. hPa:	1500
1st speed 1/min:	600	1	onal de hi ess. Hild!	7 00

Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 46.90...47.90 1000\$:: (45.10...49.70) 1/min: 1500 9th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 34.60...38.60 1000s.: (34.10...39.10) Shutoff 1/min: 1300 10th speed Charge press. hPa: 700 Shutoff electromagnet Volt: 12 Shutoff Del. quantity cm3/: 46.10...49.10 1000s.: (45.60...49.60) 11th speed 1/min: 600 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 33.80...37.80 1000s.: (32.80...38.80) Cut-in Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) KF MS Idle delivery: 1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.50...12.50 1000s.: (6.50...14.50) change. Dispersion cm3/: 2.5 1000s.: (3.0) 1/min: 550 2nd speed Shutoff electromagnet Voit: 12 Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1250 1st speed Charge press. hPa: 700 Inj.-qty. cm3/ : 16.00...24.00 difference 1000s.: (16.00...24.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1/min: 1250 1st speed Charge press. hPa: 700 TD-travel : 1.40...1.60

mm: (1.40...1.60)

electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 400 1st speed electromagnet Volt: 12 Del. quantity cm3/: 42.50...57.50 1000s.: (42.50...57.50) 4th speed 1/min: 100 electromagnet Volt: 12 Del. quantity cm3/: 38.00...70.00 1000s.: (38.00...70.00) Shutoff electromagnet: min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 mm: 5.7...5.9 mm: 0.8...1.0 SVS max. mm: -Remarks: Operate control lever after each manifold pressure compensator pressure

difference

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : HAN : 11.6.94 Edition Replaces : 11.93 : ISO-4113 Test oil Combination no. : 0 400 674 048 Injection pump Pump designation : PE4A95D42ORS2662-1 EP type number : 0 410 694 994 Governor Governor design. RSV350...1100A8C2222 -2R : 0 420 233 339 Governer no. Customer-spec. information Customer : HANOMAG : D944T Engine 1st version kW : 97.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 003 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ___ BEGINNING OF DELIVERY Test pressure, bar: 25...27

> : 2.15...2.25 : (2.10...2.30)

: 1-2-4-3

Rack travel in mm : 9.00...12.00

Phasina : 0-90-180-270 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1100Rack travel in mm : 12.75...12.85 Del.quantity cm3/: 12.9...13.1 100 s: (12.7...12.3) Spread cm3 : 0.3100 s: (0.8) 2nd speed rpm : 350.0Rack travel in mm : 6.2...6.4 Del.quantity cm3/ : 1.1...1.5 100 s: (0.9...1.7) Spread cm3 : 0.5100 s: (0.9) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 3.25FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 : 129.0...131.0 Del.quantity 1000 : (127.0...133.0) cm3 : 3.50 Spread (0.8):0001RATED SPEED 1st version Control lever position degrees: 96...104 Testing: 1st rack travel in: 11.80 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1185...1215 Speed 3rd rack travel in: 4.00

Prestroke mm

Firing order

rpm : 1205...1235 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 64...72 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 5.8 Testina: rpm : 100 Speed Minimum rack trave: 19.50 Speed rpm : 350
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00 rpm : 470...530 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.75...12.85 2nd speed rpm : 500 Rack travel in m: 13.25...13.35 3rd speed rpm : 900 Rack travel in m: 12.90...13.10 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 500 Speed Del.quantity cm3/: 129.5...133.5 1000 s: (127.5...135.5) **BREAKAWAY** 1st version

1mm rack travel less than

full load rack tr: 11.80 Speed

rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 122.5...137.5 1000 s: (120.0...140.0)

Rack travel in mm: 19.50...21.00

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS			
Note remarks			
Test sheet Edition Replaces Test oil	: MB : 7.4.94 : - : ISO-4113		
Combination no.	: 0 400 846 614		
Governor	: PES6A95D41ORS2844 : O 410 896 893		
-	: RQV3001400AB1065 -31L : 0 420 212 246		
Governer no.			
Customer-spec. in Customer	: MERCEDES-BENZ		
Engine	: OM 366		
1st version kW Rated speed	: 97.0 : 2800		
TEST BENCH REQUIR	EMENTS		
Test oil inlet temp. °C	: 3842		
Overflow valve	: 1 419 992 198		
Inlet press., bar	: 1.50		
Test nozzle holde assembly	r : 0 681 343 009		
Opening pressure, bar	: 172175		
Test Lines	: 1 680 750 015		
Outside diameter x Wall thickness x Length mm	: 6.00x1.50x600		
(A) Injection pum Insp. values Set equal del per values	in parentheses		
BEGINNING OF DELI Test pressure, ba			

: 3.20...3.30 : (3.15...3.35)

```
Rack travel in mm : 9.00...12.00
Firing order : 1-5-3-6-2-
Phasing
0-60-120-180-240-300
Tolerance + - ^{\circ} : 0.50 (0.75)
Time to cyl. no. : 1
BASIC SETTING
             rpm: 1400
1st speed
Rack travel in mm : 8.70...8.80
Del.quantity cm3/ : 7.3...7.5
            100 s: (7.1...7.7)
Spread
            cm3 : 0.3
            100 s: (0.6)
2nd speed
            rpm : 300
Rack travel in mm: 4.4...4.6
Del.quantity cm3/: 0.8...1.2
            100 s: (0.5...1.4)
            cm3 : 0.3
Spread
            100 s: (0.5)
(B) Setting of injection pump
   with governor
GUIDE SLEEVE TRAVEL
1st speed
            rpm : 300
 travel mm
                 : 0.85...1.35
                 : 5900
2nd speed
            rpm
 travel nm
                 : 3.25...3.75
3rd speed
                 : 640
            rpm
 travel mm
                   3.65...4.15
4th speed
                 : 925
            rpm
 travel mm
                 : 4.60...5.00
            rpn: 1450
5th speed
 travel mm
                 : 8.05...8.15
GUIDE SLEEVE POSITION
Control-lever position
           Degree: -1
            rpm : 1450
Speed
Rack travel in mm : 15.20...17.80
FULL LOAD DELIV. AT FULL LOAD STOP
1st version
Speed
            rpm : 1400
```

Prestroke mm

Del.quantity : 73.0...75.0 1000 : (71.0...77.0) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control Lever position degrees: 109...117 Testing: 1st rack travel in: 7.75 rpm : 1440...1450 Speed 2nd rack travel in: 4.00 Speed rpm : 1510...1540 4th rack travel in: 1650 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 60...68 Testing: Speed rpm : 100 Minimum rack trave: 6.00 Speed rpm : 300 Rack travel in mm : 4.40...4.60 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Del.quantity cm3/ : 55.5...58.5 1000 s: (53.0...61.0 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 7.75 Speed rpm : 1440...1450 STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

Rack travel in mm : 10.80...11.20

:

Remarks:

900

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.50...2.60 Prestroke mm : (2.45...2.65) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1- 3- 2 : KHD 1 g 36 : 11.06.94 Test sheet Edition Replaces : 07.04.89 Test oil : ISO-4113 Phasing : 0-120-240 Combination no. : 0 400 863 015 Tolerance + - ° : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES3A85D410/3RS2642 EP type number : 0 410 883 989 1st speed rpm: 1200 Governor Governor design. Rack travel in mm: 10.30...10.40 RSV325...1200A2C2102 -31 Del.quantity cm3/: 6.8...6.9 : 0 420 232 508 Governer no. 100 s: (6.6...7.1) Customer-spec, information Customer : KHD Spread cm3 : 0.3: F3L913 Engine 100 s: (0.5) 1st version kW 2nd speed rpm : 325.0 Rack travel in mm : 7.9...8.1 : 44.0 Rated speed : 2400 Del.quantity cm3/: 0.9...1.6 TEST BENCH REQUIREMENTS 100 s: (0.7...1.8) cm3 : 0.2Spread Test oil 100 s: (0.4) inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Overflow valve Control-lever position : 1 417 413 000 Degree: -3 rpm : 800 Speed Inlet press., bar: 1.50 Rack travel in mm : 0.30...0.70 Test nozzle holder Governor spring pre-tension assembly : 0 681 343 009 Click setting x : 3.75Openina FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 172...175 1st version Speed rpm : 1200 Test lines : 1 680 750 014 Del.quantity : 68.5...69.5 : (66.5...71.5) 1000 Outside diameter : 3.00 Spread cm3 x Wall thickness 1000 : (5.00) x Length mm : 6.00x2.00x600 RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Control lever per values position degrees: 94...102 BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27 1st rack travel in: 9.30 rpm : 1240...1250 Speed

2nd rack travel in: 4.00

rpm : 1275...1305 Speed 3rd rack travel in: 4.00 Speed rpm : 1295...1325 4th rack travel in: 1460 rom : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 66...74 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 7.4 Testing: rpm : 100 Speed Minimum rack trave: 19.50 Speed rpm : 325
Rack travel in mm : 7.80...8.00 Rack travel in mm : 2.00 Speed : 440...500 rom TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 10.30...10.40 nd speed rpm : 500 Rack travel in m: 10.70...10.90 2nd speed rpm : 750 3rd speed Rack travel in m: 10.65...10.85 4th speed rpm : 875 Rack travel in m: 10.40...10.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/: 59.0...61.0 1000 s: (56.5...63.5) Speed rpm : 750 Del.quantity cm3/: 59.0...61.0 1000 s: (56.5...63.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.30 rpm : 1240...1250 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 140.0...150.0 1000 s: (137.0...153.0) Rack travel in mm : 19.50...21.00

Remarks: : FENDT APPLICATION

Tractor (tractor engines)

800

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : KHD 1 g 34 Edition : 11.06.94 Replaces : 30.11.93 Test oil : ISO-4113

Combination no. : 0 400 864 070

Injection pump

Pump designation : PES4A85D410/3RS2732 EP type number : 0 410 884 947

Governor

Governor design. : RSV325...1175A8c2223

-2L

Governer no. : 0 420 232 484

Customer—spec. information Customer : KHD

Engine : F4L913

1st version kW : 56.0 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60 : (2.45...2.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1175

Rack travel in mm : 9.90...18.00

Del.quantity cm3/ : 6.8...6.9

100 s: (6.6...7.1)

Spread cm3 : 0.3

100 s: (0.4)

2nd speed rpm : 325.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 300

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 1175

Del.quantity : 68.0...69.0

1000 : (66.0...71.0)

Spread cm3 : 3.00 1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 8.90

Speed rpm : 1215...1225

2nd rack travel in: 4.00

rpm : 1245...1275 Speed 3rd rack travel in: 4.00 Speed rpm : 1250...1280 4th rack travel in: 1425 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 66...74 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm: 5.6 Testing: Speed : 100 rpm Minimum rack trave: 19.50 Speed rpm : 325 Rack travel in mm : 6.00...6.20 Rack travel in mm : 2.00 Speed rom : 450...510 TORQUE CONTROL Torque control curve - 1st version rpm : 1175 1st speed Rack travel in m: 9.90...10.00 nd speed rpm : 500 Rack travel in m: 10.55...10.65 2nd speed 4th speed rpm : 800 Rack travel in m: 10.25...10.45 FUEL DELIVERY CHARACTERISTICS 1st version Speed : 800 rpm Del.quantity cm3/: 61.0...63.0 1000 s: (58.5...65.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.90 Speed rpm : 1215...1225 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 115.0...125.0 1000 s: (112.0...128.0) Rack travel in mm : 17.70...17.90 Remarks: : RENAULT **APPLICATION** Tractor (tractor engines)

010

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.50...2.60 : (2.45...2.65) Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2 Note remarks : KHD 1 g 43 : 11.06.94 Test sheet Edition : 02.08.91 Replaces Test oil : ISO-4113 Phasing : 0-90-180-270 Combination no. : 0 400 864 074 Tolerance + - ° : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES4A85D410/3RS2638 EP type number : 0 410 884 950 rpm: 1150 1st speed Governor Governor design. Rack travel in mm : 11.40...11.50 RSV325...1150A0C2168-4L Del.quantity cm3/ : 7.1...7.2 : 0 420 232 524 Governer no. 100 s: (6.9...7.4) Customer-spec. information : KHD Customer Spread cm3 : 0.3: BF4L913T Engine 100 s: (0.5) 2nd speed rpm : 325.0 Rack travel in mm : 9.0...9.2 1st version kW : 60.0 : 2300 Rated speed Del.quantity cm3/: 1.6...2.2 TEST BENCH REQUIREMENTS 100 s: (1.4...2.4) cm3 : 0.2Spread Test oil 100 s: (0.4) inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Overflow valve Control-Lever position : 1 417 413 000 Degree: -3 Speed rpm : 800 Inlet press., bar: 1.50 Rack travel in mm : 0.30...0.70 Test nozzle holder Governor spring pre-tension : 0 681 343 009 assembly Click setting x : 4.00Opening FULL LOAD DELIV. AT FULL LOAD STOP : 172...175 pressure, bar 1st version Speed riom : 1150 : 71.5...72.5 : (69.5...74.5) Test Lines : 1 680 750 014 Del.quantity 1000 Outside diameter cm3 : 3.00 Spread x Wall thickness 1000 : (5.00) x Length mm : 6.00x2.00x600 RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Control Lever per values position degrees: 101...109 BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27 1st rack travel in: 10.40 rpm : 1190...1200 Speed

2nd rack travel in: 4.00

Speed וחסרו : 1270...1300 3rd rack travel in: 4.00 Speed rpm : 1340...1370 4th rack travel in: 1500 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 76...84 Satting point wout bumper spring rpm : 325 Rack travel in mm : 8.6 Testing: Speed : 100 rpin Minimum rack trave: 19.50 rpm : 325 Speed Rack travel in mm : 9.00...9.20 Rack travel in mm : 2.00 Speed rpm : 735...795 TORQUE CONTROL Torque control curve - 1st version rpm : 1150 1st speed Rack travel in m: 11.40...11.50 nd speed rpm : 500 Rack travel in m: 12.60...12.80 2nd speed rpm : 800 3rd speed Rack travel in m: 12.00...12.10 4th speed rpm : 940 Rack travel in m. 12.00...12.10 FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed rpm Del.quantity cm3/: 71.5...73.5 1000 s: (69.0...76.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.40 Speed rom : 1190...1200 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 125.0...135.0 1000 s: (122.0...138.0) Rack travel in mm : 19.50...27.00 Remarks: : DX3X **APPLICATION**

Tractor (tractor engines)

012

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 1.90...2.00 : (1.85...2.05) Rack travel in mm : 9.00...12.00 Firing order : 1-3-5-4-2 Note remarks Test sheet : KHD : 11.06.94 Edition Replaces : 14.02.92 Test oil : ISO-4113 Phasina : 0-72-144-216-288 Combination no. : 0 400 865 019 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Injection pump BASIC SETTING Pump designation : PES5A80D410/3RS2526 EP type number : 0 410 885 004 1st speed rom: 1130 Governor Governor design. Rack travel in mm : 12.60...12.70 RSV325...1150A8C604-Del.quantity cm3/: 6.5...6.6 Governer no. : 0 420 232 573 100 s: (6.3...6.7) Customer-spec, information Customer : KHD Spread cm3 : 0.2: F5L912 Engine 100 s: (0.4) 1st version kW : 62.0 2nd speed rpm : 325.0 : 2300 Rated speed Rack travel in mm: 8.9...9.1 Del.quantity cm3/: 0.9...1.5 TEST BENCH REQUIREMENTS 100 s: (0.7...1.6) cm3 : 0.2Spread Test oil 100 s: (0.3) inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Overflow valve Control-lever position : 1 417 413 000 Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 Inlet press., bar: 1.00 Test nozzle holder Governor spring pre-tension assembly : 0 681 343 009 Click setting x : 4.50Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 172...175 1st version Speed rpm : 1130 Test lines : 1 680 750 014 : 65.0...66.0 Del.quantity : (63.5...67.5) 1000 : 2.50 Outside diameter Spread cm3 x Wall thickness 1000 : (4.00) x Length mm : 6.00x2.00x600 RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Control lever per values position degrees: 100...108 BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27 1st rack travel in: 11.60 rpm : 1170...1180 Speed

2nd rack travel in: 4.00

Speed rpm : 1215...1245

3rd rack travel in: 4.00

Speed rpm : 1220...1250

4th rack travel in: 1350

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 65...73

Setting point wout bumper spring

Speed rpm : 325 Rack travel in mm : 8.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 325

Rack travel in mm : 8.90...9.10

Rack travel in mm : 2.00

Speed rpm : 470...530

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1130

Rack travel in m: 12.60...12.70

2nd speed rpm : 500

Rack travel in m: 13.30...13.40

4th speed rpm : 910

Rack travel in m: 12.90...13.10

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 1170...1180

Remarks:

APPLICATION

Installation 2300

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM Edition : 11.6.94 Replaces Test oil : ISO-4113 Combination no. : 0 400 866 177 Injection pump Pump designation : PES6A95D12ORS2859 E? type number : 0 410 896 890 Governor Governor design. RSV410...1050AOC2260 Governer no. : 0 420 233 342 Customer-spec, information Customer : CUMMINS Engine : 6 BT 1st version kW : 150.0 Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.00 Test nozzle holder assembly : 1 688 901 101 **Openina** pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter

: 2.10...2.20 : (2.05...2.25) Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2 Phasing : 0-90-180-270 Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm : 10501st speed Rack travel in mm : 10.95...11.05 Del.quantity cm3/: 9.6...9.8 100 s: (9.4...10.0) Spread cm3 : 0.3100 s: (0.8) rpm : 430 2nd speed Rack travel in mm: 6.9...7.0 Del.quantity cm3/: 1.4...1.8 100 s: (1.1...2.0) Spread cm3 : 0.5100 s: (0.9) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 1.50FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1050Aneroid pressure h: 900 : 96.0...98.0 Del.quantity 1000 : (94.0...100.0) : 3.50 cm3 Spread 1000 : (8.00) RATED SPEED 1st version Control lever position degrees: 81...89 Testing:

Test pressure, bar: 25...27

Prestroke mm

per values ____

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

x Wall thickness

: 6.00x2.00x600

x Length mm

1st rack travel in: 10.00 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 3rd rack travel in: 4.00 Speed rpm: 1180...1210 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control Lever position degrees: 62...70 Setting point w/out bumper spring rom : 430 Rack travel in mm: 6.50 Testing: Speed rpm : 100 Minimum rack trave: 19.50 mpm : 430 Speed Rack travel in mm : 6.90...7.10 Rack travel in mm : 2.00 rpm : 490...550 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 10.95...11.05 2nd speed rpm : 500 Rack travel in m: 10.95...11.15 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : 900 Rack travel mm : 11.05...11.15 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 9.40...9.60
2nd pressure hPa : 550
Rack travel in m: 10.60...10.70
3rd pressure hPa : 260 Rack travel in m: 9.80...10.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 Speed rpm : 500 Del.quantity cm3/: 85.5...87.5 1000 s: (83.5...89.5)

Speed rpm : 500 Del.quantity cm3/ : 57.0...59.0 1000 s: (55.0...61.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1090...1110 STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 107.5...122.5 1000 s: (105.0...125.0) Rack travel in mm : 13.80...14.20 Remarks: Start-of-delivery mank 11.5° cam angle after start of delivery cyl. 1 Latching at 0.75 bar...0.85 bar. Unlatching at 0.40 bar...0.50 bar

Aneroid pressure h: -

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : FOR Edition : 11.6.94 : 01.12.93 Replaces Test oil : ISO-4113 Combination no. : 0 400 876 410 Injection pump Pump designation : PES6A95D41ORS2838 EP type number · 0 410 896 895 Governor Governor design. RSV400...1050A2C2263 Governer no. : 0 420 232 589 Customer-spec. information Customer : FNH-GEOTECH : 7.5 L5 Engine 1st version kW : 119.0 Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 101 **Opening** pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _

Test pressure, bar: 25...27 : 2.55...2.65 : (2.50...2.70) Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-Phasina 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING 1st speed rpm: 1250 Rack travel in mm : 10.75...10.85 Del.quantity cm3/: 9.4...9.6 100 s: (9.2...9.8) Spread cm3 : 0.3100 s: (0.8) rpm : 450.0 2nd speed Rack travel in mm: 5.6...5.8 Del.quantity cm3/: 1.3...1.7 100 s: (1.1...2.0) Spread cm3 : 0.5100 s: (0.9) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm: 0.30...0.70 Governor spring pre-tension Click setting x : 5.00FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 Aneroid pressure h: 700 Del.quantity : 94.3...98.5) cm3 : 3.50 1000 : (8.00) RATED SPEED 1st version Control lever position degrees: 104...112

BEGINNING OF DELIVERY

Testina:

1st rack travel in: 9.80

rpm : 1293...1298

2nd rack travel in: 4.00

Speed rpm : 1368...1373 4th rack travel in: 1475

Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever

position degrees: 74...82

Setting point w/out bumper spring

rpm : 450 Rack travel in mm: 5.2

Testina:

Speed rpm : 100 Minimum rack trave: 19.50

: 450 rpm Speed

Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00

: 510...570 Speed rpm

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 10.75...10.85

2nd speed rpm : 600

Rack travel in m: 10.75...10.95

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed

hPa : 700 Pressure

Rack travel mm : 10.70...10.90

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.20...8.40

2nd pressure hPa : 475

Rack travel in m: 10.15...10.25

3rd pressure hPa : 310

Rack travel in m: 8.80...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 600 Del.quantity cm3/ : 99.0...103.0

1000 s: (97.0...105.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 60.5...62.5 1000 s: (58.5...64.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

Speed rpm : 1293...1298

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 183.0...203.0

1000 s: (180.0...206.0)

Rack travel in mm: 18.30

LOW IDLE

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Hydraulic latching of starting delivery.

Latching at 0.75 bar...0.85 bar.

Unlatching at 0.40 bar...0.50 bar

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : SCA Edition : 11.06.94 Replaces : ISO-4113 Test oil Combination no. : 0 401 846 926AA Injection pump Pump designation : PE6P110A720R\$3040-2 EP type number : 0 411 816 774 Governor Governor design. : RQV200...1100PA555-4 : 0 421 813 878 Governer no. Customer-spec. information Customer : SCANIA Engine : DS11 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 104 assembly Openina : 250...253 pressure, bar Orifice plate diameter mm : 0,7 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-Firing order Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.30 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 12.90...13.00 Del.quantity cm3/: 17.1...17.3 100 s: (16.8...17.6) Spread cm3 : 0.8100 s: (1.2) rpm : 250 2nd speed Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 1.1..1.7 100 s: (0.8...2.0) Spread cm3 : 0.4100 s: (0.8) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 225 1st speed : 1.10...1.50 travel mm rpm : 350 2nd speed travel mm : 2.30...2.90 rpm : 700 3rd speed : 4.70...5.30 travel mm rpm : 1050 4th speed : 8.40...8.60 travel mm 5th speed rpm : 1165 travel mm : 9.90...10.30 GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1070 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700 Aneroid pressure h: 1500

per values _

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

: 3.30...3,40

: (3.25...3.45)

Del.quantity : 171.0...173.0

1000 : (169.0...175.0)

Spread cm3 : 8.00 1000 : (12.0)

RATED SPEED

1st version Control lever

position degrees: 112...120

Testina:

1st rack travel in: 11.90 rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1275...1305

4th rack travel in: 1400

Speed rom : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 65...73

Testing:

Speed rpm : 150 Minimum rack trave: 5.50 rpm : 250

Rack travel in mm : 4.40...4.60

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 12.90...13.00 2nd speed rpm : 1000 Rack travel in m: 12.90...13.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rom : 500 hPa : 1500 Pressure

: 12.90...13.00 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.40...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 rpm : 1000 Speed

Del.quantity cm3/: 160.0...168.0

1000 s: (158.0...172.0)

Aneroid pressure h:

rpm : 500 Speed

Del.quantity cm3/: 112.0...116.0 1000 s: (110.0...118.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO

diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : HAE 12,0 a Edition : 14.06.94 : 05.10.92 Replaces Test oil : ISO-4113

Combination no. : 0 401 846 933

Injection pump

Pump designation : PE6P110A320RS3260 EP type number : 0 411 816 775

Governor

Governor design. : RQ250/1050PA969 : 0 421 801 538 Governer no.

Customer-spec. information Customer : HAEP

Engine : X6130 NA

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.60...3.70 Prestroke mm : (3.55...3.75)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.30 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 600

Rack travel in mm: 12.10...12.20

Del.quantity cm3/: 13.0...13.2

100 s: (12.7...13.4)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0Rack travel in mm: 7.6...8.0 Del.quantity cm3/: 1.5...2.0 100 s: (1.2...2.2) Spread cm3: 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

> Degree: -1 rpm : 500

Rack travel in mm : 12.60...14.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 600

Del.quantity : 130.0...132.0 1000 : (127.5...134.5)

Spread cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed : 500 rpm Rack travel in mm: 13.4

Testing:

1st rack travel in: 10.40

rpm : 1085...1100 Speed

2nd rack travel in: 4.00

rpm : 1110...1140 Speed

4th rack travel in: 1250

Speed rpm : 0.00...1.80 LOW IDLE 1

Setting point w/out bumper spring

Speed rpm: 250 Rack travel in mm: 7.8

Testing:

rpm : 100 Speed Minimum rack trave: 9.30 Speed rpm : 250
Rack travel in mm : 7.70...7.90
Rack travel in mm : 2.00

rpm : 295...335 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 600 Rack travel in m: 12.10...12.20 2nd speed rpm : 1035

Rack travel in m: 11.25...11.55

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1035 Del.quantity cm3/ : 129.5...135.5 1000 s: (126.5...138.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1085...1100

STARTING FUEL DELIVERY

Spaed rpm : 100 Del.quantity cm3/ : 180.0...200.0

1000 s: (176.0...204.0)

Remarks:

D22

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA : 2.11.93 Edition : 21.09.92 Replaces Test oil : ISO-4113

Combination no. : 0 401 846 950

Injection pump

Pump designation : PE6P110A720RS3289 EP type number : 0 411 816 781

Governor

Governor design. RQV200...1100PA555-5

Governer no. : D 421 813 943

Customer-spec. information Customer : SCANIA

Engine : DS11 63A

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 104

Opening

pressure, bar : 250...253

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40

: (3.25...3.45)

Firing order : 1-5- 3- 6- 2-

Rack travel in mm : 9.00...12.00

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 17.1...17.3

100 s: (16.9...17.5)

Spread cm3 : 0.6

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 6.5...6.7 Del.guantity cm3/: 1.9...2.5 100 s: (1.6...2.8)

Spread cm3 : 0.3100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

: 0.70...1.10 travel mm rpm : 350 2nd speed

travel mm : 2.00...2.60

3rd speed rpm : 650

travel mm

: 4.90...5.50 : 1145

4th speed rpm

: 8.30...8.50 travel mm

5th speed : 1300 rpm

travel mm : 9.70...10.10

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1130 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700 Aneroid pressure h: 1500 Del.quantity : 7/1.0....75.0)

: 8.00 Spread cm3 1000 : (12.0)

RATED SPEED

1st version Control lever

position degrees: 112...120

Testing:

1st rack travel in: 11.30

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1280...1310 Speed

4th rack travel in: 1420

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 65...73

Testing:

: 100 Speed rpm Minimum rack trave: 8.20 MOLT : 325

Rack travel in mm : 6.50...6.70

Rack travel in mm : 2.00

rpm : 400...460 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm Pressure hPa : 1500

: 12.30...12.40 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.80...10.20

2nd pressure hPa : 200

Rack travel in m: 11.70...11.80

3rd pressure hPa : 140

Rack travel in m: 10.65...10.95

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 rpm : 1100 Speed

Del.quantity cm3/: 160.0...168.0

1000 s: (158.0...170.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 112.0...116.0 1000 s: (110.0...118.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 240.0...290.0 Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 325

Rack travel in mm : 6.50...6.70

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO diaphragm.

Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : UNI 13,8 j Edition : 11.6.94 Replaces : 29.11.91 Test oil : ISO-4113 Scarbination no. : 0 401 846 959 Injection pump Pump designation: PE6P120A720RS3293 EP type number : 0 411 826 801 Governor Governor design. : RQV225...1000PA1016 ~6 Governer no. : 0 421 813 971 Customer-spec. information Customer : IVECO-UNIC : 8215.22.400 Engine TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening: pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 075 Outside diameter x Wall thickness

: 8.00x2.50x1000

: 3.50...3.60 : (3.45...3.65)

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

Rack travel in mm : 9.00...12.00 Firing order : 1-5- 3- 6- 2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1000Rack travel in mm : 14.60...14.70 Del.quantity cm3/: 21.7...21.9 100 s: (21.4...22.2) Spread cm3 : 0.5100 s: (0.9) 2nd speed rpm : 375.0 Rack travel in mm: 7.2...7.4 Del.quantity cm3/ : 2.5...3.1 100 s: (2.2...3.4) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1045 travel mm : 7.80...8.00 2nd speed rpm : 225 travel mm : 0.60...1.00 3rd speed rpm : 700 travel mm : 3.80...4.40 4th speed : 1300 rpm travel mm : 11.00...12.00 GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1110 Rack travel in mm : 11.90...14.50 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000 Aneroid pressure h: 700 Del.quantity : 217.0...222.0)

x Length mm

Prestroke mm

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

cm3 : 5.00Spread

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 101...109

Testing:

1st rack travel in: 13.60

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

Speed rpm : 1130...1160

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 75...83

Testing:

Speed rpm : 300 Minimum rack trave: 9.50 rpm

Speed rpm : 375
Rack travel in mm : 7.20...7.40

CONSTANT REGULATION

Speed rpm : 380...500

Aneroid/Altitude Compensator Test

1st version

Setting Speed

rpm : 500 hPa : 700 rpm Pressure

Rack travel mm : 14.60...14.70

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.90...12.10

2nd pressure hPa : 260 Rack travel in m: 13.40...13.50

3rd pressure hPa : 200

Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm: 700 Del.quantity cm3/: 219.0...225.0 1000 s: (216.0...228.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 154.0...156.0

1000 s: (151.0...159.0)

Spread cm3 : -

1000 s: (8.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.60

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 245.0...275.0 1000 s: (241.0...279.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

D26

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF : 11.6.94 Edition Replaces : 27.11.92

: ISO-4113 Test oil

combination no. : 0 401 846 964

Injection pump

Pump designation : PE6P110A320RS3302 EP type number : 0 411 816 787

Governor

Governor design: RQ300/1000PA1012-1

Governer no. : 0 421 801 648

Customer-spec. information Customer : DAF

Engine : LT 195 L

: 195.0 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 089

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.70...3.80 : (3.65...3.85) Prestroke mm

Rack travel in mm : 14.00...15.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 3.90...4.10 & maximum rack tra: 13.9...14.9 Difference ° CS : 3.00...5.00

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 17.3...17.5

100 s: (17.0...17.7)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 7.6...7.8

Del.quantity cm3/: 2.7...3.2 100 s: (2.5...3.5)

cm3 : 0.8Spread

100 s: (1.1)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850 Aneroid pressure h: 1000

: 173.0...175.0 Del.quantity

1000 : (170.5...177.5)

cm3 : 4.00 Spread

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 20.0

Testina:

1st rack travel in: 13.45

Speed rpm : 1044...1060 2nd rack travel in: 4.00

Speed rpm: 1115...1145 4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.7

Testing:

Speed rpm : 200 Minimum rack trave: 11.00

Speed rpm : 300 Rack travel in mm : 7.60...7.80

Rack travel in mm : 2.50

: 350...390 Speed rom

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 15.10...15.20 2nd speed rpm : 1000 Rack travel in m: 15.00...15.20

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed man hPa : 1000 Pressure

Rack travel mm : 14.50...14.60

Measurement

Speed 1/min: 600

1st pressure hPa : 530

Rack travel in m: 14.00...14.10

2nd pressure hPa : 380

Rack travel in m: 13.00...13.20

3rd pressure hPa : -

Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -Speed rpm : 600 Del.quantity cm3/: 131.0...133.0 1000 s: (128.5...135.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.45

Speed rpm : 1044...1060

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 330.0...370.0 1000 s: (327.0...373.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300

Rack travel in mm : 7.60...7.80 Del.quantity cm3/: 27.5...32.5 1000 s: (25.0...35.0)

cm3 : 8.00 Spread

1000 s: (11.0)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DAF : 11.6.94 : 2.12.93 Edition Replaces : ISO-4113 Test oil Combination no. : 0 401 846 971 Injection pump Pump designation : PE6P110A320RS3302Z EP type number : 0 411 816 789 Governor Governor design. : RQ300/1000PA1012-1 Governer no. : 0 421 801 648 Customer-spec, information Customer : DAF Engine : LS 195 M 1st version kW : 195.0 Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valva : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 101 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 089 Outside diameter x Wall thickness x Lenath mm : 8.00x2.50x600

: 3.70...3.80 Prestroke mm : (3.65...3.85) Rack travel in mm : 14.00...15.00 Firing order : 1-5-3-6-Phasina 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 3.90...4.10 & maximum rack tra: 13.5...14.5 Difference ° CS : 3.00...5.00 BASIC SETTING 1st speed rpm: 850 Rack travel in mm : 13.90...14.00 Del.quantity cm3/: 16.5...16.7 100 s: (16.2...16.9) Spread cm3 : 0.4100 s: (0.7) 2nd speed rpm : 300.0Rack travel in mm: 7.9...8.1 Del.quantity cm3/: 2.7...3.2 100 s: (2.5...3.5) Spread cm3 : 0.8100 s: 1.10) GUIDE SLEEVE POSITION Control-lever position Degree: -2 Speed rpm : 600 Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 850 Aneroid pressure h: 1000 : 165.0...167.0 Del.quantity 1000 : (162.5...169.5) : 4.00 Spread cm3 1000 : (7.50) RATED SPEED

1st version

per values

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Setting point:

Speed rpm : 600 Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.95

Speed rpm : 1044...1060

2nd rack travel in: 4.00

Speed rpm : 1110...1140

4th rack travel in: 1250

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point wout bumper spring

Speed rpm : 300 Rack travel in mm : 6.5

Testing:

Speed rpm : 200 Minimum rack trave: 11.00 Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 13.90...14.00

2nd speed rpm : 1000

Rack travel in m: 13.85...14.05

Ameroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600 Pressure hPa : 1000

Rack travel mm : 13.90...14.00

Measurement

Speed 1/min: 600

1st pressure hPa : 480

Rack travel in m: 13.50...13.60

2nd pressure hPa : 340

Rack travel in m: 12.50...12.70

3rd pressure hPa : -

Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed

rpm : 600

Del.quantity cm3/: 125.0...127.0

1000 s: (122.5...129.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.95

Speed rpm : 1044...1060

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 330.0...370.0

1000 s: (327.0...373.0)

Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.70...3.80 : (3.65...3.85) Rack travel in mm : 14.00...15.00 Firing order : 1-5-3-6-2-Note remarks Test sheet : DAF : 11.6.94 Edition Replaces Test oil : ISO-4113 Phasing 0-60-120-180-240-300 Combination no. : 0 401 846 972 Injection pump Tolerance $+ - ^{\circ} : 0.30 (0.75)$ Pump designation : PE6P110A320RS3302Y EP type number BASIC SETTING : 0 411 816 790 Governor Governor design. : RQ300/1000PA1012-1 1st speed rpm: 850 : 0 421 801 648 Governer no. Rack travel in mm : 13.00...13.10 Customer-spec. information Del.quantity cm3/: 14.1...14.3 Customer : DAF Engine : LT 160 L 100 s: (13.8...14.5) 1st version kW : 160.0 Spread cm3 : 0.4Rated speed : 2000 100 s: (0.7) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0 Rack travel in mm: 7.3...7.7 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 2.7...3.2 100 s: (2.5...3.5) Overflow valve cm3 : 0.8Spread : 1 417 413 025 100 s: 1.10) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -2 assembly : 1 688 901 101 Speed rpm : 600 Rack travel in mm : 19.20...20.80 **Openina** pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate 1st version diameter m. : 0,6 Speed rpm : 850 Aneroid pressure h: 1000 : 141.0...143.0 Del.quantity 1000 : (138.5...145.5) Test lines : 1 680 750 089 cm3 : 4.00 1000 : (7.50) Spread Outside diameter x Wall thickness x Length mm : 8.00x2.50x600 RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values ____ : 600 rpm Rack travel in mm : 20.0 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testina:

1st rack travel in: 12.05

rpm : 1044...1060 Speed 2nd rack travel in: 4.00

rpm : 1105...1135 Speed

4th rack travel in: 1300

rpm : 0.00...1.50Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm: 6.5

Testing:

Speed rpm : 200 Minimum rack trave: 11.00 Speed rpm : 300 Rack travel in mm : 6.40...6.60

Rack travel in mm: 2.50 Speed rpm : 350...390

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 13.00...13.10 2nd speed rpm : 1000 Rack travel in m: 12.95...13.15

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 600 rpm

Pressure hPa : 1000 Rack travel mm : 13.00...13.10

Measurement

Speed 1/min: 600

1st pressure hPa : 360

Rack travel in m: 12.70...12.80

2nd pressure hPa : 270

Rack travel in m: 12.00...12.20

3rd pressure hPa : -

Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 108.5...110.5

1000 s: (106.0...113.0)

BREAKAWAY

1st version

E04

1mm rack travel less than

full load rack tr: 12.05

rpm : 1044...1060

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 330.0...370.0

1000 s: (327.0...373.0) Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DAF Edition : 11.6.94 : 3.12.93 Replaces Test oil : ISO-4113 Combination no. : 0 401 846 982 Injection pump Pump designation : PE6P110A320RS3302X EP type number : 0 411 816 794 Governor Governor design. : RQ300/1000PA1012-1 Governer no. : 0 421 801 648 Customer-spec. information Customer : DAF Engine : LS 160 M 1st version kW : 150.0 Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0.6 Test lines : 1 680 750 089 Outside diameter x Wall thickness x Length mm : 8.00x2.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Prestroke mm : 3.70...3.80 : (3.65...3.85) Rack travel in mm : 14.00...15.00 Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 3.90...4.10 & maximum rack tra: 12.5...13.5 Difference ° CS : 3.00...5.00 BASIC SETTING rpm: 850 1st speed Rack travel in mm: 13.95...14.15 Del.quantity cm3/: 14.4...14.6 100 s: (14.1...14.8) cm3 : 0.4Spread 100 s: (0.7) 2nd speed rpm : 300.0 Rack travel in mm: 7.1...7.3 Del.quantity cm3/: 2.7...3.2 100 s: (2.5...3.5) Spread cm3 : 0.5100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Speed Rack travel in mm: 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 850 Speed Aneroid pressure h: 1000 : 144.0...146.0 Del.quantity 1000 : (141.5...148.5) : 4.00 Spread cm3 1000 : (7.50) RATED SPEED

1st version

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Setting point:

: 600 Speed rpm Rack travel in mm: 20.0

Testina:

1st rack travel in: 12.05

rpm : 1044...1060 Speed

2nd rack travel in: 4.00

rpm : 1105...1135 Speed

4th rack travel in: 1250

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.5

Testing:

Speed : 200 rpm Minimum rack trave: 11.00 : 300 Speed rpm

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00 Speed : 345...385 rom

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 13.00...13.10

2nd speed : 1000 rpm

Rack travel in m: 12.95...13.15

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 850 rpm Pressure hPa : 1000

: 13.00...13.10 Rack travel mm

Measurement

Speed $1/\min : 600$

1st pressure hPa : 310

Rack travel in m: 12.60...12.70 2nd pressure hPa : 220 Rack travel in m: 11.90...12.10

3rd pressure hPa : -

Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -Speed rom : 600 Del.quantity cm3/: 110.5...112.5

1000 s: (108.0...115.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.05

Speed rpm : 1044...1060

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 330.0...370.0

1000 s: (327.0...373.0)

Rack travel in mm: 19.50...21.00

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN Edition : 08.06.94 Replaces Test oil : ISO-4113 Combination no. : 0 402 036 755 Injection pump Pump designation : PES6P120A720/3LS3255 EP type number : 0 412 026 768 Governor Governor design. : RQ300/1000PA813-23 : 0 421 801 710 Governer no. Customer-spec. information Customer : MAN Engine : D2866LU08 1st version kW : 230.0 : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Openina pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test Lines : 1 680 750 075 Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Test pressure, bar: 30...32 Prestroke mm : 3.70...3.80 : (3.65...3.85) Rack travel in mm : 14.50...15.50 Firing order : 6-2-4-1-5-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 6 BASIC SETTING 1st speed rpm : 700 Rack travel in mm : 13.85...13.95 Del.quantity cm3/: 20.4...20.6 100 s: (20.1...20.9) Spread cm3 : 0.5100 s: (0.9) 2nd speed rpm : 300.0 Rack travel in mm: 6.1...6.5 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.8Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 550 Speed Rack travel in mm : 14.70...16.30 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700 Aneroid pressure h: 1200 204.0...206.0 1000 : (201.0...209.0) Del.quantity : 5.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Setting point: Speed rpm : 750

BEGINNING OF DELIVERY

Rack travel in mm: 15.5 Testing: 1st rack travel in: 12.90 Speed rpm : 1045...1061 2nd rack travel in: 4.00 Speed rpm : 1135...1165 4th rack travel in: 1260 Speed rpm : 0.00...1.00LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm : 6.3 Testina: Speed : 200 rpm Minimum rack trave: 9.80 rpm : 300 Speed Rack travel in mm : 6.20...6.40 Rack travel in mm : 2.00 Speed rom : 360...400 Aneroid/Altitude Compensator Test 1st version Settina Speed : 500 rpm hPa : 1200 Pressure : 13.85...13.95 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 11.20...11.50 2nd pressure hPa : 110 Rack travel in m: 11.60...11.70 3rd pressure hPa : 450 Rack travel in m: -13.15...13.45 START CUT-OUT 1/min: 220 (280) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Aneroid pressure h: 1200 rpm : 1000 Speed Del.quantity cm3/: 209.0...215.0 1000 s: 206.0...218.00) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 119.0...121.0 1000 s: (116.0...124.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.90

rpm : 1045...1061 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0)

Remarks:

: MAN'NR. 3-7336

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV Edition : 26.5.94 Replaces : 15.06.93 Test oil : ISO-4113

Combination no. : 0 402 046 841

Injection pump

Pump designation : PES6P100A320LS3309 EP type number : 0 412 006 704

Governor

Governor design. : RQV350...1300PA1042

-4K

Governer no. : 0 421 815 328

Customer—spec. information Customer : NAVISTAR

Engine : DTA-408

1st version kW : 171.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 076

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 240...260

Test nozzle holder

assembly : 1 688 901 101

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter x Wall thickness

 $x \text{ Length } mm : 6.00 \times 1.50 \times 600$

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05

: (2.90...3.10) Rack travel in mm : 14.00...17.00

Firing order : 1-5- 3- 6- 2-

4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 14.4...14.6

100 s: (14.2...14.8)

Spread cm3: 0.8

100 s: (1.2)

2nd speed rpm : 350.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.4...1.8

100 s: (1.2...2.1) Spread cm3 : 0.4

100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350 travel mm : 1.60...2.00

2nd speed rpm : 500 travel mm : 3.80...4.20

3rd speed rpm : 800

travel mm : 5.80...6.20 4th speed rpm : 1300

travel mm : 8.90...9.10

5th speed rpm : 1500 travel mm : 10.40...10.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 900 Aneroid pressure h: 1200

E09

Del.quantity : 144.5...148.5) : 8.00 Spread cm3 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 112...124 Testina: 1st rack travel in: 11.90 Speed rpm : 1340...1370 2nd rack travel in: 4.00 Speed rpm : 1510...1520 4th rack travel in: 1650 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 68...80 Testina: Speed rpm : 275 Minimum rack trave: 6.50 Speed : 350 Rack travel in mm : 5.30...5.50 CONSTANT REGULATION Speed rcm : 355...525 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 12.50...12.60 2nd speed rpm : 1300 Rack travel in m: 12.80...13.00 3rd speed rpm : 700 Rack travel in m: 11.80...12.20 Aneroid/Altitude Compensator Test 1st version Setting Speed rom : 1300 hPa : 1200 Pressure Rack travel mm : 12.80...13.00 Measurement 1/min: 1300 Speed 1st pressure hPa : -Rack travel in m: 8.50...8.90 2nd pressure hPa : 300

Rack travel in m: 9.50...9.60

3rd pressure hPa : 890

START CUT-OUT Speed 1/min: 280 (290) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 1300 Speed Del.quantity cm3/: 151.5...155.5 1000 s: (149.5...157.5) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 900 Speed Del.quantity cm3/: 65.0...69.0 1900 s: (63.0...71.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.90 Speed rpm : 1340...1370 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 120.0...160.0 1000 s: (115.0...165.0) Rack travel in mm: 20.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 14.5...18.5 1000 s: (12.0...21.0) Spread cm3 : 4.001000 s: (6.50) Remarks: : NAVISTAR #1819917091 Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

Rack travel in m: 11.70...12.10

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV : 14.10.93 Edition : 08.93 Replaces Test oil : ISO-4113

Combination no. : C 402 046 846

Injection pump

Pump designation : PES6P100A320LS3309 EP type number : 0 412 006 704

Governor

Governor design. : RQV350...1300PA1042

-7K

Governer no. : 0 421 815 331

Customer-spec, information Customer : NAVISTAR

Engine : DTA-408

1st version kW : 130.5 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 058

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 240...260

Test nozzle holder

assembly : 1 688 901 101

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 2.95...3.05 Prestroke mm

: (2.90...3.10)

Rack travel in mm : 14.00...17.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 10.0...10.2

100 s: (9.8...10.4)

cm3 : 0.8Spread

100 s: (1.2)

2nd speed rpm : 350.0 Rack travel in mm : 5.1...5.3

Del.quantity cm3/ : 1.4...1.8

100 s: (1.2...2.1) Spread cm3 : 0.4

100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

1.60...2.00 travel mm

2nd speed rpm

: 500 : 3.80...4.20 travel mm

rpm : 800 3rd speed

travel mm : 5.80...6.20

rpm : 1300 4th speed

travel mm : 8.90...9.10

rpm : 1500 5th speed

: 10.40...10.80 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 Speed rpm : 1500 Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP 1st pressure hPa : -Rack travel in m: 8.80...9.20 1st version 2nd pressure hPa : 270 Rack travel in m: 9.80...9.90

3rd pressure hPa : 580

Rack travel in m: 11.10...11.50 Speed rpm : 900 Aneroid pressure h: 1200 : 100.0...102.0 1000 : (98.0...104.0) Del.quantity cm3 : 8.00 1000 : (12.00) Spread START CUT-OUT Speed 1/min: 280 (290) RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 116...124 1st version Aneroid pressure h: 1200 Speed rpm : 1300 Del.quantity cm3/ : 122.0...126.0 1000 s: (120.0...128.0) Testing: 1st rack travel in: 10.70 rpm : 1360...1390 Speed 2nd rack travel in: 4.00 Spread cm3 : 8.00 Speed rpm : 1500...1510 4th rack travel in: 1650 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 0.00...1.00rpm : 900 Speed Del.quantity cm3/: 69.0...73.0 LOW IDLE 1 1000 s: (67.0...75.0) Control lever position degrees: 71...79 BREAKAWAY Testina: Speed 1st version l'ipra Minimum rack trave: 6.20 1mm rack travel less than Speed : 350 rom Rack travel in mm : 5.10...5.30 full load rack tr: 10.70 Speed rpm : 1360...1390 CONSTANT REGULATION Speed rom : 350...520 STARTING FUEL DELIVERY TORQUE CONTROL Dimension a mm Speed rpm : 100 Del.quantity cm3/: 120.0...160.0 Torque control curve - 1st version rpm : 900 1st speed 1000 s: (115.0...165.0) Rack travel in m: 11.00...11.10 Rack travel in mm : 20.00...21.00 2nd speed rpm : 1300 Rack travel in m: 11.70...11.90 3rd speed rpm : 700 Rack travel in m: 10.30...10.70 LOW IDLE Speed rpin : 350 Rack travel in mm : 5.10...5.30 Del.quantity cm3/: 14.5...18.5 Aneroid/Altitude Compensator Test 1000 s: (12.0...21.0) Spread cm3 : 4.001000 s: (6.50) 1st version Setting Remarks: Speed : 1300 rpm : NAVISTAR Pressure hPa : 1200 #1819923091 : 11.70...11.90 Rack travel mm Bow dimension: Measurement Sliding-sleeve position = 37.0 mm 1/min: 1300 Speed Setting and blocking of pointer of

E12

start-of-delivery sensor on cyl. 1 start of delivery

Delivery-valve spring pre-tension = 6.30...6.40 mm.
Permissible alteration from 6.00...6.70 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV Edition : 26.5.94

Replaces

Test oil : ISO-4113

Combination no. : 0 402 046 848

Injection pump

Pump designation : PES6P100A320LS3325 EP type number : 0 412 006 709

Governor

Governor design. : RQV350...1200PA1042

-8K

: 0 421 815 346 Governer no.

Customer-spec. information Customer : NAVISTAR

Engine : DTA-466

: 205.5 1st version kW Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 076

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 240...260

Test nozzle holder

: 1 688 901 101 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 2.95...3.05 : (2.90...3.10) Prestroke mm

Rack travel in mm : 14.00...17.00

Firing order : 1-5-3-6-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 15.20...15.30

Del.quaritity cm3/: 17.4...17.6

100 s: (17.2...17.8)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 350.0Rack travel in mm: 6.9...7.1 Del.quantity cm3/: 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.4100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350: 1.80...2.00 travel mm

2nd speed : 500 rom

travel mm : 3.50...3.90

3rd speed : 800 rpm

travel mm : 6.20...6.60 4th speed : 1250

rpm travel mm

9.30...9.50

5th speed : 1400 rpm

travel mm : 10.50...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800 Aneroid pressure h: 1200

Del.quantity : 174.5...176.5 1000 : (172.5...178.5) Spread cm3 : 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 115...127 Testing: 1st rack travel in: 14.60 rpm : 1240...1275 Speed 2nd rack travel in: 4.00 Speed rpm : 1450...1460 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 70...82 Testing: : 275 Speed rpm Minimum rack trave: 8.60 : 350 rpm Rack travel in mm : 6.90...7.10 CONSTANT REGULATION rpm : 350...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 800 1st speed Rack travel in m: 15.20...15.30 : 1200 2nd speed rpm Rack travel in m: 15.60...15.80 3rd speed rpm : 450 Rack travel in m: 13.00...13.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1200 COM hPa : 1200 Pressure : 15.60...15.80 Rack travel mm Measurement 1/min: 1200 Speed

Rack travel in m: 14.00...14.40 START CUT-OUT Speed 1/min: 280 (290) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed : 1200 rpm Del.quantity cm3/: 182.0...186.0 1000 s: (180.0...188.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 800 Del.quantity cm3/ : 69.0...71.0 1000 s: (66.0...74.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 14.60 Speed rpm : 1240...1275 STARTING FUEL DELIVERY Speed rpm : 100
Del.quantity cm3/: 120.0...160.0
1000 s: (115.0...165.0) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.90...7.10 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5) cm3 : 4.00Spread 1000 s: (6.50) Remarks: : NAVISTAR #1819924c91 Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery Delivery-valve spring pre-tension = 6.30...6.40 mm.

Permissible alteration from 6.00...6.70

1st pressure hPa : -

2nd pressure hPa : 405

Rack travel in m: 10.10...10.50

Rack travel in m: 12.00...12.10 3rd pressure hPa : 815

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.80...4.90 Prestroke mm : (4.75...4.95) Rack travel in mm : 19.00...21.00 Firing order : 1-5-3-6-2-4 Note remarks Firing order : DAF Test sheet Edition : 11.6.94 Replaces Test oil : ISO-4113 Phasing 0-60-120-180-240-300 Combination no. : 0 402 046 856 Tolerance $+ - \circ : 0.30 (0.75)$ Injection pump Pump designation : PE6P110A320RS3329Z Time to cyl. no. : 6 EP type number : 0 412 016 744 Governor BASIC SETTING Governor design. : RQV325...1300PA1119 : 0 421 814 083 Governer no. rom: 1000 1st speed Customer-spec. information Rack travel in mm : 11.80...11.90 : DAF Customer Del.guantity cm3/: 14.5...14.7 : NS133M Engine 100 s: (14.2...15.0) : 133.0 1st version kW Rated speed : 2600 cm3 : 0.4Spread TEST BENCH REQUIREMENTS 100 s: (0.7) rpm : 325.0 Test oil 2nd speed Rack travel in mm : 5.1...5.3 Del.quantity cm3/ : 2.3...2.8 inlet temp. °C : 38...42 Overflow valve 100 s: (2.1...3.1) : 1 417 413 025 Spread cm3 : 0.4 100 s: (0.7) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Test nozzle holder Control-lever position assembly : 1 688 901 101 Degree: -1 rpm : 1450 Speed Opening Rack travel in mm : 9.50...12.10 pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate diameter mm : 0,6 1st version Speed rpm : 1000 Aneroid pressure h: 1000 : 145.0...147.0 Test lines : 1 680 750 008 Del.quantity 1000 : (142.0...150.0) Outside diameter cm3 : 4.00 Spread x Wall thickness 1000 : (7.50) x Length mm : 6.00x2.00x600 RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Control lever per values ___ position degrees: 118...126 BEGINNING OF DELIVERY Testing: Test pressure, bar: 25...27 1st rack travel in: 10.85 rpm : 1337...1347

Speed

2nd rack travel in: 4.00 rpm : 1445...1475 Speed 4th rack travel in: 1600 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 79...87 Testina: Speed : 225 rpm Minimum rack trave: 8.80 Speed rpm : 325 Rack travel in mm : 4.40...4.60 TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 11.80...11.90 2nd speed rpm : 700 Rack travel in m: 11.80...11.90 3rd speed rpm : 1300 Rack travel in m: 11.80...11.90 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 1000 Pressure Rack travel mm : 11.80...11.90 Measurement 1/min: 600 Speed 1st pressure hPa : 310
Rack travel in m: 10.50...10.60
2nd pressure hPa : 130
Rack travel in m: 7.75...7.95 3rd pressure hPa : -Rack travel in m: 6.50...6.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 700 Del.quantity cm3/ : 143.0...147.0 1000 s: (140.0...150.0) Aneroid pressure h: -Speed rpm : 600 Del.quantity cm3/: 87.0...89.0 1000 s: (84.5...91.5)

1st version 1mm rack travel less than full load rack tr: 10.85 rpm : 1337...1347 STARTING FUEL DELIVERY Speed rpm : 100 Rack travel in mm : 6.50...6.70 Remarks:

BREAKAWAY

E17

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.80...4.90 : (4.75...4.95) Rack travel in mm : 19.00...21.00 Note remarks Firing order : 1-5-3-6-2-4 Test sheet : DAF : 11.6.94 Edition Replaces Test oil : ISO-4113 Phasing 0-60-120-180-240-300 Combination no. : 0 402 046 861 Tolerance $+ - ^{\circ} : 0.30 (0.75)$ Injection pump Pump designation : PE6P110A320RS3329 Time to cyl. no. : 6 EP type number : 0 412 016 743 Governor BASIC SETTING Governor design. : RQ325/1300PA1150 Governer no. : 0 421 801 716 1st speed rpm: 1000 Customer-spec. information Rack travel in mm : 11.80...11.90 Customer : DAF Del.quantity cm3/: 14.3...14.5 Engine : NS156M 100 s: (14.0...14.8) 1st version kW : 156.0 Rated speed : 2600 cm3 : 0.4Spread TEST BENCH REQUIREMENTS 100 s: (0.7) Test oil 2nd speed rpm : 325.0inlet temp. °C : 38...42 Rack travel in mm : 5.1...5.3 Del.quantity cm3/: 2.3...2.8 Overflow valve 100 s: (2.1...3.1) : 1 417 413 025 Spread cm3 : 0.4100 s: (0.7) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Test nozzle holder Control-lever position : 1 688 901 101 assembly Degree: -2 rpm : 650 Speed **Opening** Rack travel in mm : 19.20...20.80 : 207...210 pressure, bar FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate diameter mm : 0,6 1st version Speed rpm : 1000 Aneroid pressure h: 1000 Test lines 1 1 680 750 008 Del.quantity : 143.0...145.0 1000 : (140.0...148.0) Outside diameter Spread : 4.00 cm3 × Wall thickness 1000 : (7.50) : 6.00x2.00x650 x Length mm RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. per values ____ Setting point: : 650 rpm BEGINNING OF DELIVERY Rack travel in mm: 20.0

Testing:

Test pressure, bar: 25...27

1st rack travel in: 10.85 rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1435...1465 4th rack travel in: 1600 rpm : 0.00...1.00 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 4.50 Testing: rpm : 225 Speed Minimum rack trave: 5.90 rpm : 325 Rack travel in mm : 4.40...4.60 Rack travel in mm: 2.00 Speed rpm : 415 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 11.80...11.90 2nd speed rpm : 700 Rack travel in m: 11.80...11.90 3rd speed rpm : 1300 Rack travel in m: 11.80...11.90 Aneroid/Altitude Compensator Test 1st version Setting rpm : 600 Speed hPa : 1000 Pressure Rack travel mm : 11.80...11.90 Measurement 1/min: 600 Speed 1st pressure hPa : 370 Rack travel in m: 10.70...10.80 2nd pressure hPa : 200 Rack travel in m: 8.45...8.65 3rd pressure hPa : -Rack travel in m: 7.05...7.25 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 700 Del.quantity cm3/: 143.0...147.0

1000 s: (140.0...150.0)

Del.quantity cm3/: 97.5...99.5 1000 s: (95.0...102.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.85 Speed rpm : 1340...1350 Remarks:

Speed

Aneroid pressure h: -

rpm : 600

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1- 5- 4- 8- 6-7- 2 Firing order Note remarks Test sheet : STE : 11.6.94 Edition Phasina Replaces : 13.12.93 0-45-90-135-180-229 Test oil : ISO-4113 270-315 Tolerance + - ° : 0.50 (0.75) Combination no. : 0 402 638 807 Time to cyl. no. : 1 Injection pump Pump designation : PE8P120A120LS7127 BASIC SETTING EP type number : 0 412 628 817 Governor 1st speed rpm: 500 Governor design. : RQ300/1100PA134-3 Governer no. : 0 421 801 655 Rack travel in mm : 14.50...14.60 Customer-spec. information Del.quantity cm3/: 14.2...14.4 Customer : SNF 100 s: (13.9...14.7) Engine : WD 815.72/73 Spread cm3 : 0.5TEST BENCH REQUIREMENTS 100 s: (0.9) Test oil inlet temp. °C : 38...42 2nd speed rpm : 300.0Rack travel in mm : 6.3...6.9 Del.quantity cm3/: 1.7...2.3 Overflow valve : 1 417 413 025 100 s: (1.4...2.6) Spread cm3 : 0.8Inlet press., bar: 1.50 100 s: (1.2) Test nozzle holder GUIDE SLEEVE POSITION : 1 688 901 105 assembly Control-lever position Degree: -1 **Opening** rpm : 600 pressure, bar : 207...210 Rack travel in mm : 15.40...16.60 Orifice plate FULL LOAD DELIV. AT FULL LOAD STOP diameter mm : 0,8 1st version Speed rpm : 500 Test lines : 1 680 750 089 Aneroid pressure h: 1500 : 235.0...241.0 : (232.0...244.0) Del.quantity 1000 Outside diameter x Wall thickness Spread cm3 : 5.00 x Length mm : 8.00X2.50X600 1000 : (9.00) (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values Setting point: BEGINNING OF DELIVERY Speed rpm : 600 Test pressure, bar: 25...27 Rack travel in mm: 16.0 : 5.00...5.10 : (4.95...5.15) Prestroke mm Testing: 1st rack travel in: 13.30 Rack travel in mm : 9.00...12.00 rpm : 1145...1161 Speed

E20

2nd rack travel in: 4.00

rpm : 1230...1260 Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 6.6

Testing:

Speed rpm : 200 Minimum rack trave: 8.00 : 300 rpin

Rack travel in mm : 6.50...6.70

Rack travel in mm: 2.00 Speed MOET : 400...440

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed

st speed rpm : 1100 Rack travel in m: 14.40...14.70

rpm : 500 2nd speed

Rack travel in m: 14.40...14.70

Aneroid/Altitude Compensator Test

1st version

Settina

: 500 Speed rpm hPa : 1500 Pressure

Rack travel mm : 14.40...14.70

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.10...10.20 2nd pressure hPa : 790 Rack travel in m: 13.20...13.30 3rd pressure hPa : 490

Rack travel in m: 11.15...11.35

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 Speed rpm : 1100
Del.quantity cm3/ : 212.0...216.0
1000 s: (209.0...219.0)
Spread cm3 : 12.00

1000 s: (15.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 142.0...144.0 1000 s: (139.0...147.0)

cm3 : 5.00Spread 1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.30

rpm : 1145...1161 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 180.0...210.0 1000 s: (176.0...214.0)

Rack travel in mm : 15.50...16.50

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1- 5- 4- 8- 6-Note remarks 7- 2 Test sheet : STE : 11.6.94 Edition Replaces : 13.12.93 Test oil : ISO-4113 Phasing 0-45-90-135-180-225 Combination no. : 0 402 638 808 270-315 Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PE8P120A120LS7127 Time to cyl. no. : 1 EP type number : 0 412 628 817 Governor BASIC SETTING Governor design. : RQV300...1100PA785-3 rpm : 500 1st speed Governer no. : 0 421 814 004 Rack travel in mm : 14.50...14.60 Customer—spec. information Customer : SNF Del.quantity cm3/: 14.2...14.4 Engine : WD 815.72/73 100 s: (13.9...14.7) TEST BENCH REQUIREMENTS Spread cm3 : 0.5Test oil 100 s: (0.9) inlet temp. °C : 38...42 rpm : 250.0 2nd speed Overflow valve Rack travel in mm: 6.3...6.9 : 1 417 413 025 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) Inlet press., bar: 1.50 cm3 : 0.8 Spread 100 s: (1.2) Test nozzle holder assembly : 1 688 901 105 (B) Setting of injection pump with governor **Opening** pressure, bar : 207...210 GUIDE SLEEVE TRAVEL 1st speed rpm : 250 Orifice plate : 0.95...1.35 travel mm diameter mm : 0,8 2nd speed rpm : 355 : 1.70...2.20 travel mm 3rd speed rpm : 410 Test lines : 1 680 750 089 travel mm : 2.20...2.70 4th speed : 1150 rom Outside diameter : 8.35...8.65 travel mm x Wall thickness 5th speed rpm : 1390 x Length mm : 8.00x2.50x600 : 11.00...12.00 travel mm (A) Injection pump setting values GUIDE SLEEVE POSITION Insp. values in parentheses Control-lever position Set equal delivery quant. Degree: -1 per values rpm : 1220 Rack travel in mm : 11.50...14.10 BEGINNING OF DELIVERY Test pressure, bar: 25...27 FULL LOAD DELIV. AT FULL LOAD STOP Prestroke mm : 5.00...5.10 1st version : (4.95...5.15) rpm : 500 Speed

Aneroid pressure h: 1500

Del.quantity : 255.0...244.0)

cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 103...111

Testina:

1st rack travel in: 13.40

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1250...1280 4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 70...78

Testing:

Speed : 150 rpm Minimum rack trave: 8.60

Speed rpm : 250 Rack travel in mm : 6.50...6.70

TORQUE CONTROL

Dimension a man

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 14.40...14.70

2nd speed rpm : 500

Rack travel in m: 14.40...14.70

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rom : 500 Pressure hPa : 1500

Rack travel mm : 14.40...14.70

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.10...10.20

2nd pressure hPa : 790

Rack travel in m: 13.20...13.30

3rd pressure hPa : 520

Rack travel in m: 11.30...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Spread

Aneroid pressure h: 1500

Speed rpm : 1100 Del.quantity cm3/ : 212.0...216.0 1000 s: (209.0...219.0)

cm3 : 12.00

1000 s: (15.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 142.0...144.0 1000 s: (139.0...147.0)

cm3 : 5.00Spread

1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 180.0...210.0

1000 s: (176.0...214.0)

Rack travel in mm : 15.50...16.50

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF Edition : 13.6.94 Replaces : 14.12.93 Test oil : ISO-4113

Combination no. : 0 402 646 612

Injection pump

Pump designation : PE6P120A320RS7248

-10x

EP type number : 0 412 626 907

Governor

Governor design. : RQ275/1150PA987 Governer no. : 0 421 801 578

Customer—spec. information Customer : DAF

Engine : RS 200 M

1st version kW : 200.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 12.00...13.00 Firing order : 1-5-3-6-2-

۲.

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 11.2...12.2 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.70...11.80

Del.quantity cm3/ : 17.1...17.3

100 s: (16.8...17.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.3...1.9

100 s: (1.0...2.2) pread cm3 : 0.8

Spread cm3 : 0.8 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Speed Degree: -1 speed rpm : 550

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1000

Del.quantity : 171.0...173.0 1000 : (168.0...176.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550 Rack travel in mm: 15.8

Testing:

1st rack travel in: 10.75

rpm : 1184...1200 Speed

2nd rack travel in: 4.00

rpm : 1255...1285 Speed

4th rack travel in: 1450

rpm : 0.00...1.40 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275

Rack travel in mm: 4.9

Testina:

rpm : 175 Speed

Minimum rack trave: 7.00

rpm : 275 Speed

Rack travel in mm : 4.80...5.00

Rack travel in mm : 2.00

Speed rpm : 320...360

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 1000

Rack travel mm : 11.70...11.80

Measurement

1/min: 600 Speed

1st pressure hPa : 340

Rack travel in m: 11.20...11.30

2nd pressure hPa : 200

Rack travel in m: 10.10...10.30

3rd pressure hPa : -

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 120.5...122.5

1000 s: (117.5...125.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.75

rpm : 1184...1200 Speed

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : DAF : 13.6.94 Edition Replaces : 15.12.93 Test oil : ISO-4113

Combination no. : 0 402 646 613

Injection pump

Pump designation : PE6P120A320RS7248

-10W

EP type number : 0 412 626 908

Governor

Governor design. : RQ275/1150PA987 Governer no. : 0 421 801 578

Customer-spec. information Customer : DAF

Engine : RS 180 M

1st version kW : 180.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-

Firing order

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.39 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 11.2...12.2 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 15.3...15.5

100 s: (15.0...15.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm3 : 0.8100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1
Speed rpm: 550
Rack travel in mm: 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 1000

Del.quantity : 153.0...155.0

1000 : (150.0...158.0) : 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 550 Speed rpm Rack travel in mm: 15.8

Testing:

1st rack travel in: 9.75

rpm : 1184...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1250...1280

4th rack travel in: 1450

rpm : 0.00...1.40 Speed

LOW IDLE 1

Setting point w/out bumper spring

: 275 rpm Rack travel in mm : 4.9

Testing:

rpm : 175 Speed Minimum rack trave: 7.00

Speed rpm : 275
Rack travel in mm : 4.80...5.00

Rack travel in mm : 2.00

rpm : 320...360 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 10.70...10.80

2nd speed rpm : 1150

Rack travel in m: 10.65...10.85

Aneroid/Altitude

Compensator Test

1st version

Setting

: 600 Speed rpm hPa : 1000 Pressure

: 10.70...10.80 Rack travel mm

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : 300 Rack travel in m: 10.40...10.50 2nd pressure hPa : 240

Rack travel in m: 9.90...10.10

3rd pressure hPa : -

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 121.5...123.5 1000 s: (118.5...126.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.75

rpm : 1184...1200 Speed

Remarks:

E27

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF Edition : 13.6.94 Replaces : 15.12.93 Test oil : ISO-4113

Combination no. : 0 402 646 614

Injection pump

Pump designation: PESP120A320RS7248

-10W

EP type number

: 0 412 626 908

Governor

Governor design. : RQV275...1150PA986

Governer no. : 0 421 813 920

Customer-spec. information Customer : DAF

Engine : RS 180 M

1st version kW : 180.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.30 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 11.2...12.2 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 15.3...15.5

100 s: (15.0...15.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 275.02nd speed Rack travel in mm : 5.2...5.6 Del.quantity cm3/ : 1.3...1.9 100 s: (1.0...2.2)

Spread cm3 : 0.8 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275 travel mm : 1.19...1.69

2nd speed rpm : 365

travel mm : 2.27...2.77 3rd speed rpm : 450

travel mm : 2.82...3.32 4th speed rpm : 799

: 4.96...5.46 travel mm

rpm : 1206 5th speed travel mm : 7.99...8.49

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1350 Speed Rack travel in mm : 8.40...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1000

: 153.0...155.0 Del.quantity 1000 : (150.0...158.0)

cm3 : 5.00 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 114...122

Testing:

1st rack travel in: 9.75

rpm : 1187...1197 Speed

2nd rack travel in: 4.00

rpm : 1275...1305 Speed

4th rack travel in: 1450

Speed rpm : 0.00...1.40

LOW IDLE 1 Control lever

position degrees: 78...86

Testing:

Speed rpm : 175 Minimum rack trave: 7.40 rpm : 275

Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

rpm : 315...365 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 10.70...10.80

rpm : 1150 2nd speed

Rack travel in m: 10.65...10.85

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600 hPa : 1000 Pressure

Rack travel mm : 10.70...10.80

Measurement

F01

1/min: 600 Speed

1st pressure hPa : 300 Rack travel in m: 10.40...10.50

2nd pressure hPa : 240

Rack travel in m: 9.90...10.10

3rd pressure hPa : -

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Ameroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 121.5...123.5 1000 s: (118.5...126.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack in: 9.75

rpm : 1187...1197 Speed

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DAF : 13.6.94 Edition Replaces : 14.12.93 Test oil : ISO-4113 Combination no. : 0 402 646 615 Injection pump Pump designation : PE6P120A320RS7248 -10x EP type number : 0 412 626 907 Governor Governor design. : RQV275...1150PA986 Governer no. : 0 421 813 920 Customer-spec, information Customer : DAF Engine : RS 200 M : 20G.G 1st version kW : 2300 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 105 Openina pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 089

: 5.20...5.30 : (5.15...5.35) Rack travel in mm : 12.00...13.00 Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ}$: 0.50 (0.75) Time to cyl. no. : 1 BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 4.90...5.10 & maximum rack tra: 11.2...12.2 Difference ° CS : 2.25...3.75 BASIC SETTING 1st speed rpm: 1000 Rack travel in mm : 11.70...11.80 Del.quantity cm3/: 17.1...17.3 100 s: (16.8...17.6) Spread cm3 : 0.5100 s: (0.9) rpm ; 275.0 2nd speed Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.3...1.9 100 s: (1.0...2.2) 8.0 : Emp Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 275 : 1.19...1.69 travel mm 2nd speed rpm : 365 travel mm : 2.27...2.77 3rd speed : 450 rpm : 2.82...3.32 travel mm 4th speed : 799 rpm travel mm : 4.96...5.46 rpm : 1206 5th speed : 7.99...8.49 travel mm GUIDE SLEEVE POSITION Control-lever position

Prestroke mm

Outside diameter

x Wall thickness

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 8.00x2,50x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

x Length mm

Dearee: -1 rpm : 1335 Speed

Rack travel in mm : 9.00...11.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1000

Del.quantity : 171.0...173.0

1000 : (168.0...176.0)

cm3 : 5.00 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 115...123

Testing:

1st rack travel in: 10.75

Speed rpm : 1187...1197

2nd rack travel in: 4.00

rom : 1290...1320 Speed

4th rack travel in: 1450

rpm : 0.00...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 78...86

Testing:

Speed : 175 rpm Minimum rack trave: 7.40 rpm : 275

Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

Speed rpm : 315...421

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 11.70...11.80

2nd speed rpm : 1150

Rack travel in m: 11.65...11.85

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 600 Speed Pressure hPa : 1000

Rack travel mm : 11.70...11.80

Measurement

F03

Speed 1/min : 600

1st pressure hPa : 340

Rack travel in m: 11.20...11.30 2nd pressure hPa : 200

Rack travel in m: 10.10...10.30

3rd pressure hPa : -

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -Speed rpm : 600

Del.quantity cm3/: 120.5...122.5 1000 s: (117.5...125.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.75

rpm : 1187...1197 Speed

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : TAT Edition : 13.6.94 Replaces Test oil : ISO-4113 Combination no. : 0 402 646 616 Injection pump Pump designation : PE6P120A320LS7278 EP type number : 0 412 626 880 Governor Governor design. : RQV325...100PA1058 : 0 421 814 047 Governer no. Customer-spec. information Customer : TAT Engine : M640s 1st version kW : 242.0 Rated speed : 200C TEST BENCH REQUIREMENTS ... Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 105 assembly Openina . pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 089 Outside diameter x Wall thickness x Length mm : 8.00X2.50X600 (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 F₀₄

: 5.00...5.10 Prestroke mm : (4.95...5.15) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-Firing order

Phasina 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 23.2...23.4

100 s: (22.9...23.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0Rack travel in mm: 4.8...5.4 Del.quantity cm3/ : 2.1...2.7 100 s: (1.8...3.0)

cm3 : 0.8

Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed travel mm

: 1.30...1.80 2nd speed : 404 rpm

travel mm : 2.16...2.66

3rd speed : 500 rpm

: 3.10...3.60 : 764 travel mm 4th speed

rpm travel mm : 5.52...6.02

rpm : 1056 5th speed travel mm : 8.41...8.81

GUIDE SLEEVE POSITION Control-lever position Degree: -1

rpm : 1100 Speed

Rack travel in mm : 11.00...13.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 1500

: 232.0...234.0 Del.quantity

1000 : (229.0...237.0)

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version Control lever

position degrees: 113...121

Testing:

1st rack travel in: 12.45

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1145...1175 Speed

4th rack travel in: 1250

Speed rpm : 0.06...1.40

LOW IDLE 1 Control lever

position degrees: 60...68

Testina:

Speed : 225 rpm Minimum rack trave: 6.70 : 325 Speed rom

Rack travel in mm: 4.80...5.40

Aneroid/Altitude Compensator Test

1st version

Settina Speed

: 500 rpm hPa : 1500 Pressure

: 13.40...13.50 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.30...8.70

2nd pressure hPa : 1000

Rack travel in m: 12.95...13.05

3rd pressure hPa : 520

Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 141.0...145.0

10...0 >: (139.0...147.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.45

rpm : 1949...1050 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 290.0...330.0 1000 s: (286.0...334.0)

Remarks:

F05

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 5.50...5.60 : (5.45...5.65) Rack travel in mm : 20.00...21.00 Note remarks Firing order : 8-7-2-6-3-Test sheet : MB Edition : 7.6.94 4-1 : 05.94 Replaces : ISO-4113 Test oil Combination no. : 0 402 648 928 Phasing 0-45-90-135-180-225 Injection pump 270-315 Pump designation : PE8P120A320LS7847-2 Tolerance + - ° : 0.30 (0.75) EP type number : 0 412 628 835 Governor Time to cyl. no. : 8 Governor design. : RQ300/1050PA1030-19 Governer no. : 0 421 801 748 BASIC SETTING Customer-spec. information 1st speed rom : 550 Customer : MERCEDES-BENZ Rack travel in mm : 14.75...14.85 : 0M402 LA Engine Del.quantity cm3/: 23.8...24.0 : 280 0 1st version kW Rated speed : 2100 100 s: (23.5...24.3) TEST BENCH REQUIREMENTS Spread cm3 : 0.6Test oil 100 s: (0.9) inlet temp. °C : 38...42 2nd speed rpm : 300Rack travel in mm : 5.40...6.00 Del.quantity cm3/ : 1.0...1.6 Overflow valve : 1 417 413 025 100 s: (0.7...1.9) Inlet press., bar: 1.50 cm3 : 0.6Spread 100 s: (1.0) Test nozzle holder assembly : 1 688 901 105 FULL LOAD DELIV. AT FULL LOAD STOP Opening 1st version pressure, bar : 207...210 rpm : 550 Speed Aneroid pressure h: 1200 Orifice plate Del.quantity : 238.0...240.0 1000 : (235.0...243.0) diameter mm : 0,8 Spread cm3 : 6.00 1000 : (9.00) Test lines : 1 680 750 075 RATED SPEED Outside diameter x Wall thickness 1st version x Lenath mm : 8.00X2.50X1000 Setting point: (A) Injection pump setting values : 600 rpm Insp. values in parentheses Rack travel in mm: 20.0 Set equal delivery quant. per values Testing: 1st rack travel in: 13.00 BEGINNING OF DELIVERY rpm : 1090...1106 Speed Test pressure, bar: 25...27 2nd rack travel in: 4.00 rpm : 1175...1205

Speed

4th rack travel in: 1350 rom : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.5 Testing: Speed : 200 rom Minimum rack trave: 7.20 Speed COM : 300 Rack travel in mm : 5.40...5.60 Rack travel in mm: 2.00 rpm : 400...440 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 550 Rack travel in m: 14.75...14.85 2nd speed rpm : 1050 Rack travel in m: 13.95...14.15 3rd speed rpm : 950 Rack travel in m: 14.10...14.30 4th speed rpm : 775 Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Setting : 400 Speed rpm hPa : 1200 Pressure : 14.75...14.85 Rack travel mm Measurement Speed 1/min: 400 1st pressure hPa : 450 Rack travel in m: 12.80...13.00 2nd pressure hPa : 300 Rack travel in m: 11.75...12.05 3rd pressure hPa : -Rack travel in m: 10.25...10.55 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 1050 Speed Del.quantity cm3/: 210.0...214.0 1000 s: (207.0...217.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 450 Speed rpm

Del.quantity cm3/: 164.5...167.5 1000 s: (161.5...170.5) Aneroid pressure h: -Speed rpm: 400 Del.quantity cm3/: 104.0...106.0 1000 s: (101.0...109.0) Spread cm3: 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.00 Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0...210.0 1000 s: (185.0...214.0)

Remarks:

F07

Note remarks

Test sheet : MB Edition : 02.94 Replaces : 10.93 Test oil : ISO-4113

Combination no. : 0 402 648 933

Injection pump

Pump designation : PE8P12DA320LS7847 EP type number : 0 412 628 863

Governor

Governor design: RQ300/950PA1031-3 : 0 421 801 646 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M402 LA

1st version kW : 280.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina .

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00

Firing order : 8-7-2-6-3-

4-1

Phasing 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 13.55...13.65

Del.quantity cm3/: 23.8...24.0

100 s: (23.5...24.3)

cm3 : 0.6 Spread

100 s: (0.9)

rpm : 300 2nd speed

Rack travel in mm: 5.2...5.8 Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

cm3 : 0.6Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110 Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 550 Speed

Aneroid pressure h: 1200 Del.quantity : 238.0...240.0

1000 : (235.0...243.0)

: 6.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point: Speed rpm: 600 Rack travel in mm: 20.0 Testina: 1st rack travel in: 12.00 rpm : 990...1006 Speed 2nd rack travel in: 4.00 Speed rpm : 1060...1090 4th rack travel in: 1350 Speed rpm : 0.00...1.50 LOW IDLE 1 Control lever position degrees: 69.0...77.0 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.5 Testina: rpm : 200 Speed Minimum rack trave: 7.90 Speed rpm : 300
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00 Speed rpm : 360...400 TORQUE CONTROL Dimension a mm : 0.55 Torque control curve - 1st version 1st speed rpm : 550 Rack travel in m: 13.55...13.65 2nd speed rpm : 950 Rack travel in m: 12.90...13.10 3rd speed rpm : 900 Rack travel in m: 13.15...13.25 4th speed rpm : 875 Rack travel in m: 13.20...13.40 5th speed rpm : 800 Rack travel in m: 13.55...13.65 Aneroid/Altitude Compensator Test 1st version Setting rpm : 400 Speed hPa : 1200 Pressure Rack travel mm : 13.55...13.65 Measurement 1/min: 400 Speed 1st pressure hPa : 450 Rack travel in m: 12.10...12.20 2nd pressure hPa : 300

Control Lever

position degrees: 93.0...101.0

Rack travel in m: 11.35...11.55 3rd pressure hPa : -Rack travel in m: 10.65...10.95 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 950 Speed Del.quantity cm3/: 212.0...216.0 1000 s: (209.0...219.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 450 rpm : 400 Speed Del.quantity cm3/: 160.5...163.5 1000 s: (157.5...166.5) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/ : 107.0...109.0 1000 s: (104.0...112.0) Spread cm3 : 8.001000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.00 rpm : 990...1006 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 260.0...280.0 1000 s: (256.0...284.0) Remarks:

F09

Note remarks

Test sheet : MB

Edition : 17.03.94

Replaces : -

Test oil : ISO-4113

Combination no. : 0 402 648 933

Injection pump

Pump designation : PE8P120A320LS7847-3

EP type number : 0 412 628 886

Governor

Governor design. : RQ300/950PA1031-14

Governer no. : 0 421 801 720

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM402 LA

1st version kW : 280.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00

Firing order

: 8- 7- 2- 6- 3-

5--

4-1

Phasing

0-45-90-135-180-225-

270-315

Tolerance $+ - \circ : 0.30 (0.75)$

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 550

Rack travel in mm : 14.75...14.85

Del.quantity cm3/: 23.8...24.0

100 s: (23.5...24.3)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm: 300

Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.52...1.72

2nd speed rpm : 443

travel mm : 4.25...4.45

3rd speed rpm : 550

travel mm : 5.9...6.1

4th speed rpm: 1009

travel mm : 6.74...6.94

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110

d rpm: 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

Settina 1st version Speed rpm : 400 Speed rpm : 550 hPa : 1200 Pressure Aneroid pressure h: 1200 : 14.75...14.85 Rack travel mm Del.quantity : 238.0...240.0 1000 : (235.0...243.0) Measurement Spread cm3 : 6.00Speed 1/min: 400 1000 : (9.00) 1st pressure hPa : 450 Rack travel in m: 12.8...13.0 2nd pressure hPa : 300 RATED SPEED 1st version Rack travel in m: 11.75...12.05 Control Lever 3rd pressure hPa : position degrees: 93.0...101.0 Rack travel in m: 10.25...10.55 Setting point: START CUT-OUT Speed rpm : 600 Rack travel in mm: 20.0 Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS Testina: 1st rack travel in: 13.0 rpm : 990...1006 Speed 2nd rack travel in: 4.00 1st version rpm : 1060...1090 Speed Aneroid pressure h: 1200 4th rack travel in: 1350 Speed rpm : 950 Del.quantity cm3/ : 212.0...216.0 rpm : 0.00...1.50Speed 1000 s: (209.0...219.0) LOW IDLE 1 Spread cm3 : 8.00 Control lever 1000 s: (12.0) position degrees: 69.0...77.0 Aneroid pressure h: 450 Speed rpm : 400 Del.quantity cm3/ : 164.5...167.5 1000 s: (161.5...170.5) Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.5 Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/ : 107.0...109.0 1000 s: (104.0...112.0) Testing: Speed rpm : 200 Minimum rack trave: 7.50 rpm : 300 cm3 : 8.00 Spread Rack travel in mm : 5.40...5.60 Rack travel in mm : 2.00 1000 s: (12.0) : 400...440 Speed rpm **BREAKAWAY** TORQUE CONTROL Torque control curve - 1st version 1st version 1st speed rpm : 550 1mm rack travel less than Rack travel in m: 14.75...14.85 2nd speed rpm: 950 full load rack tr: 13.0 Rack travel in m: 13.9...14.1 Speed rpm : 990...1006 3rd speed rpm : 900 Rack travel in m: 14.0...14.2 STARTING FUEL DELIVERY 4th speed rpm : 875 Rack travel in m: 14.15...14.35 5th speed rpm : 800 Rack travel in m: 14.65...14.85 Speed rpm : 100 Del.quantity cm3/: 260.0...280.0 1000 s: (256.0...284.0) Aneroid/Altitude Compensator Test LOW IDLE Speed rpm : 300 1st version Rack travel in mm: 5.4...5.6

F11

Del.quantity cm3/: 10.0...16.0 1000 s: (7.0...19.0) Spread cm3 : 6.00 1000 s: (10.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB : 8.6.94 Edition : 4.94 Replaces Test oil : ISO-4113 Combination no. : 0 402 648 936 Injection pump Pump designation PE8P120A320LS7840-10 EP type number : 0 412 628 856 Governor Governor design. : RQ300/950PA1032-14 Governer no. : 0 421 801 749 Customer-spec. information Customer : MERCEDES-BENZ . : 0M442 A Engine 1st version kW : 250.0 : 1900 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 105 Openina pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 075 Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm : (5.15...5.35)
Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-4-1 Phasing 0-45-90-135-180-225 270-315 Tolerance + - ° : 0.30 (0.75) Time to cyl. no. : 8 BASIC SETTING rpm: 700 1st speed Rack travel in mm : 13.40...13.50 Dec.quantity cm3/: 21.1...21.3 100 s: (20.8...21.6) cm3 : 0.6Spread 100 s: (0.9) 2nd speed rpm : 300Rack travel in mm: 6.2...6.8 Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.9) cm3 : 0.8Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 600 Speed Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700 Aneroid pressure h: 750 : 211.0...213.0 Del.quantity 1000 : (208.0...216.0) Spread cm3 : 6.00 1000 : (9.00) RATED SPEED 1st version

Setting point:

: 600

rpm

Speed

Rack travel in mm: 20.0 Testina: 1st rack travel in: 12.45 Speed rpm : 990...1006 2nd rack travel in: 4.00 rpm : 1070...1100 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.60LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.5 Testing: Speed rpm : 200 Minimum rack trave: 8.80 rpm : 300 Speed Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 : 380...420 Speed rom Aneroid/Altitude Compensator Test 1st version Settina : 400 Speed rpm Pressure hPa : 400 Rack travel mm : 12.35...12.45 Measurement Speed 1/min: 400 1st pressure hPa : 750 Rack travel in m: 13.40...13.50 2nd pressure hPa : 200 Rack travel in m: 11.50...11.70 3rd pressure hPa : -Rack travel in m: 11.00...11.30 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 750 rpm : 950 Speed Del.quantity cm3/: 210.0...216.0 1000 s: (207.0...219.0)

cm3 : 8.00

1000 s: (12.0)

: 400

Aneroid pressure h: 400

rpm

Del.quantity cm3/: 156.5...159.5 1000 s: (153.5...162.5) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 136.0...138.0 1000 s: (133.0...141.0) Spread cm3: 8.00 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.45 rpm : 990...1006 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 190.0...210.0 1000 s: (186.0...214.0) Remarks: :

Spread

Speed

Note remarks

Test sheet : MB : 02.94 Edition : 10.92 Replaces Test oil : ISO-4113

Combination no. : 0 402 648 938

Injection pump Pump designation : PE8P120A320LS7840-10

: 0 412 623 856 EP type number

Governor

Governor design. : RQ300/1050PA1030-2

Governer no. : 0 421 801 652

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442 A

1st version kW : 250.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test lines

Outside diameter

x Wall thickness

x Length mm : 8.00X2.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 : 8-7-2-6-3-Firing order 5-

4-1

Phasing

0-45-90-135-180-225

270-315

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm: 6.2...6.8 Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700 Aneroid pressure h: 750

Del.quantity : 211.0...213.0

1000 : (208.0...216.0)

: 6.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 91.0...99.0

F15

Setting point: rpm : 600 Speed Rack travel in mm : 20.0 Testing: 1st rack travel in: 11.80 rpm : 1090...1106 Speed 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 Speed rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 69.0...77.0 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.5 Testing: : 200 Speed rpm Minimum rack trave: 8.80 : 300 Speed rpm Rack travel in mm : 6.40...6.60 Rack travel in mm: 2.00 : 380...420 Speed rom TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 12.70...12.90 2nd speed rpm : 900 Rack travel in m: 12.95...13.05 : 800 3rd speed rpm Rack travel in m: 13.40.. 13.50 Aneroid/Altitude Compensator Test 1st version Setting : 400 Speed rpm Pressure hPa : 400 Rack travel mm : 12.35...12.45 Measurement 1/min: 400 Speed 1st pressure hPa : 750 Rack travel in m: 13.40...13.50 2nd pressure hPa : 200 Rack travel in m: 11.50...11.70 3rd pressure hPa : -Rack travel in m; 11.00...11.30 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 750 Speed rpm : 1050 Del.quantity cm3/ : 192.0...196.0 1000 s: (189.0...199.0) cm3 : 8.00 1000 s: (12.0) Spread Aneroid pressure h: 400 Speed rpm : 400 Del.quantity cm3/ : 156.5...159.5 1000 s: (153.5...162.5) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 136.0...138.0 1000 s: (133.0...141.0) cm3 : 8.00Spread 1000 s: (12.0) **BREAKAWAY**

1st version 1mm rack travel less than full load rack tr: 11.80 Speed rpm : 1090...1106

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 50.0...70.0 1000 s: (46.0...74.0)

Remarks:

F16

Test sheet : MAN 10,0 c3
Edition : 13.06.94
Replaces : 01.02.91
Test oil : ISO-4113

Combination no. : 0 402 735 803

Injection pump Pump designation : PESSP120A720/3LS7210

EP type number : 0 412 725 808

Governor

Governor design. : RQV325...1000PA960-3

Sovemer no. : 0 421 815 271

Customer—spec. information Customer : MAN

Engine : D2865LF06/LU06

1st version kW : 235.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 105

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90 : (4.75...4.95)

Rack travel in mm : 15.00...16.00 Firing order : 1-3-5-4-2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.40...4.60 & maximum rack tra: 15.0...16.0 Difference ° CS : 1.75...3.25

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 13.50...13.60

Del.quantity cm3/: 26.9...27.1

100 s: (26.6...27.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm : 5.9...6.3 Del.quantity cm3/ : 4.7...5.3

100 s: (4.4...5.6) Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045

travel mm : 9.40...9.60 2nd speed rpm : 325

travel mm : 1.30...1.50

3rd speed rpm : 500

travel mm : 3.20...3.80

4th speed rpm: 900

travel mm : 7.60...8.00

5th speed rpm: 1350

travel mm : 13.90...14.00

GUIDE SLEEVE POSITION Control-lever position

F17

3,

Degree: -1 hPa : 1200 Pressure Speed rpm: 1110 Rack travel in mm: 15.20...17.80 Rack travel mm : 13.50...13.60 Measurement FULL LOAD DELIV. AT FULL LOAD STOP 1/min: 900 Speed 1st version 1st pressure hPa : -Speed rpm : 900 Rack travel in m: 9.20...9.40 Aneroid pressure h: 1200 2nd pressure hPa : 170 Del.quantity : 269.0...271.0 Rack travel in m: 9.60...9.70 1000 : (266.0...274.0) 3rd pressure hPa : 600 Spread cm3 : 5.00 Rack travel in m: 12.00...12.40 1000 : (9.00) START CUT-OUT RATED SPEED Speed 1/min: 245 (265) 1st version Control Lever FUEL DELIVERY CHARACTERISTICS position degrees: 293...301 Testing: 1st version 1st rack travel in: 12.10 Aneroid pressure h: 1200 rpm : 1040...1050 Speed : 1000 Speed rpm Del.quantity cm3/: 248.0...254.0 1000 s: (245.0...257.0) Aneroid pressure h: 1200 2nd rack travel in: 4.00 Speed rpm : 1135...1165 4th rack travel in: 1350 Speed rpm : 0.00...1.00: 650 rpm Del.quantity cm3/: 270.0...276.0 LOW IDLE 1 1000 s: (267.0...279.0) Control lever Aneroid pressure h: position degrees: 249...257 rpm : 500 Speed Del.quantity cm3/: 159.0...161.0 Testing: 1000 s: (156.0...164.0) Speed rpm : 100 Minimum rack trave: 7.60 : 325 BREAKAWAY rpm Rack travel in mm : 6.00...6.20 1st version CONSTANT REGULATION 1mm rack travel less than rpm : 340...450 Speed full load rack tr: 12.10 TORQUE CONTROL rpm : 1040...1050 Speed Dimension a mm :? Torque control curve - 1st version STARTING FUEL DELIVERY 1st speed rpm : 900 Rack travel in m: 13.50...13.60 2nd speed rpm: 1000 Speed : 100 rpm Rack travel in m: 13.10...13.30 Del.quantity cm3/: 180.0...200.0 3rd speed rpm : 650 1000 s: (176.0...204.0) Rack travel in m: 12.70...12.90 4th speed rpm : 400 LOW IDLE Rack travel in m: 11.90...12.20 rpm : 325 Speed Aneroid/Altitude Rack travel in mm : 5.90...6.30 Compensator Test Del.quantity cm3/: 47.0...53.0 1000 s: (44.0...56.0) cm3 : 8.00Spread 1st version 1000 s: (12.00) Setting Speed rpm : 900 Remarks:

F18



Setting and blocking of pointer of start-of-delivery sensor on cyl. 5 start of delivery

Note remarks

Test sheet : CUM : 15.06.93 Edition : 03.93 Replaces Test oil : ISO-4113

Combination no. : 0 402 736 834

Injection pump

Pump designation : PES6P120A120RS7265 EP type number : 0 412 726 882

Governor

Governor design. : RQV350...1100PA964

-12K

Governer no. : 0 421 815 323

Customer—spec. information Customer : C.D.C.

Engine : 6CTA-A

: 186.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 103 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.95...4.05 Prestroke mm

: (3.90...4.10)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-360

Tolerance $+ - ^{\circ}$: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm: 6.4...6.8 Del.quantity cm3/: 2.0...2.6

100 s: (1.8...2.8)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 2.10...2.40 : 450 2nd speed

rpm travel mm : 3.20...3.60

3rd speed 900

rpm travel mm

5.60...6.00 : 1200 4th speed

rpm

: 8.10...8.30 travel mm

5th speed rpm : 1400

travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 211.5...216.5) Rack travel in m: 10.10...10.20 3rd pressure hPa : 650 Rack travel in m: 12.40...12.80 cm3 : 5.00 1000 : (9.00) Spread START CUT-OUT RATED SPEED Speed 1/min: 290 (300) 1st version Control Lever FUEL DELIVERY CHARACTERISTICS position degrees: 58...66 Testina: 1st version 1st rack travel in: 12.40 Aneroid pressure h: 1200 rpm : 1245...1275 Speed : 650 rpm 2nd rack travel in: 4.00 Del.quantity cm3/: 166.0...172.0 rpm : 1390...1400 1000 s: (163.0...175.0) Speed 4th rack travel in: 1500 cm3 : 8.00 Spread Speed riom : 0.00...1.001000 s: (12.0) Ameroid pressure h: 1200 LOW IDLE 1 Speed rpm : 750 Del.quantity cm3/: 175.0...181.0 1000 s: (172.0...184.0) Control Lever position degrees: 13...21 cm3 : 8.00 Spread Testing: 1000 s: (12.0) Speed rbm : 275 Aneroid pressure h: rpm : 1000 Minimum rack trave: 8.30 Speed : 350 Del.quantity cm3/: 82.5...86.5 rpm 1000 s: (80.5...88.5) Rack travel in mm : 6.40...6.80 CONSTANT REGULATION rpm : 325...520 Speed **BREAKAWAY** TORQUE CONTROL 1st version Dimension a mm :? 1mm rack travel less than Torque control curve - 1st version 1st speed rpm : 1100 full load rack tr: 12.40 Rack travel in m: 13.90...14.00 rpm : 1245...1275 Speed : 650 2nd speed rpm Rack travel in m: 12.00...12.40 d speed rpm : 1200 STARTING FUEL DELIVERY 3rd speed Rack travel in m: 13.40...13.60 4th speed rpm : 750 : 100 Speed rpm Del.quantity cm3/: 180.0...220.0 1000 s: (175.0...225.0) Rack travel in m: 12.40...12.80 Aneroid/Altitude Rack travel in mm : 12.00...13.00 Compensator Test LOW IDLE 1st version Speed rpm : 350 Rack travel in mm : 6.40...6.80 Setting Speed : 1100 Del.quantity cm3/: 20.0...26.0 rpm hPa : 1200 1000 s: (18.0...28.0) Pressure Rack travel mm : 13.90...14.00 Spread cm3 : 8.00 1000 s: (12.00) Measurement 1/min: 1100 Speed Remarks: : C.D.C. # 3922471 1st pressure hPa : -Rack travel in m: 8.60...9.00 Start-of-delivery mark = 5.5° after 2nd pressure hPa : 310

start of delivery cyl. 1.

Bow dimension: Sliding-sleeve position = 37.0 mm Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

Note remarks

Test sheet : CUM
Edition : 27.05.94
Replaces : 08.93
Test oil : 150-4113

Combination no. : 0 402 736 835

Injection pump

Pump designation : PES6P120A120RS7265

EP type number : 0 412 726 882

Governor

Governor design. : RQV350...900PA964-13 k

Governer no. : 0 421 815 324

Customer—spec. information Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 205.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

assembly : 1 688 901 103

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05

: (3.90...4.10)
Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-

4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 14.70...14.80

Del.quantity cm3/: 24.2...24.4

100 s: (23.9...24.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm: 350.0

Rack travel in mm: 6.5...6.7

Del.quantity cm3/: 2.0...2.6 100 s: (1.8...2.8)

cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

Spread

1st speed rpm : 350

travel mm : 1.60...1.80

2nd speed rpm : 450

travel mm : 3.00...3.40

3rd speed rpm : 600

travel mm : 5.20...5.60

4th speed rpm : 1000

travel mm : 8.40...8.60

5th speed rpm: 1150

travel mm : 9.80...10.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 900 Aneroid pressure h: 1200 : 242.0...244.0 Del.quantity 1000 : (239.0...247.0) Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 111...123 Testina: 1st rack travel in: 13.30 rpm : 1060...1090 Speed 2nd rack travel in: 4.00 Speed rpm : 1210...1220 4th rack travel in: 1350 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 60...72 Testing: Speed : 275 rpm Minimum rack trave: 8.10 : 350 Speed rpm Rack travel in mm : 6.50...6.70 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 14.70...14.80 2nd speed rpm : 650 Rack travel in m: 13.70...14.10 3rd speed rpm : 1000 Rack travel in m: 14.30...14.50 Aneroid/Altitude Compensator Test 1st version Settina Speed : 900 rpm Pressure hPa : 1200 : 14.70...14.80 Rack travel mm Measurement 1/min: 900 Speed 1st pressure hPa : -

Rack travel in m: 9.20...9.60 2nd pressure hPa : 325 Rack travel in m: 10.60...10.70 3rd pressure hPa : 765 Rack travel in m: 13.10...13.50 START CUT-OUT 1/min : 290 (300) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 650 rpm Del.quantity cm3/: 219.5...225.5 1000 s: (216.5...228.5) cm3 : 8.00 Spread 1000 s: (12.0 Aneroid pressure h: -: 1000 Speed rpm Del.quantity cm3/: 94.5...98.5 1000 s: (92.5...1C0.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.30 rpm : 1060...1090 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 180.0...220.0 1000 s: (175.0...225.0) Rack travel in mm: 12.00...13.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.50...6.70 Del.quantity cm3/: 20.0...26.0 1000 s: (18.0...28.0) cm3 : 8.00 Spread 1000 s: (12.00) Start-of-delivery mark = 5.5° after start of delivery cyl. 1. # 3922446 Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

Note remarks

Test sheet : CUM

Edition : 27.05.94 Replaces : 16.07.93 Test oil : ISO-4113

Combination no. : 0 402 736 836

Injection pump

Pump designation : PES6P120A120RS7265

EP type number : 0 412 726 882

Governor

Governor design. : RQV350...1000PA964

-14K

: 0 421 815 325 Governer no.

Customer-spec, information Customer : C.D.C.

Engine : 6CTA-A

: 205.0 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

: 1 688 901 103 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x3.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05

: (3.90...4.10) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-

Phasing

0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 23.6...23.8

100 s: (23.3...24.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm: 6.6...6.8

Del.quantity cm3/ : 2.0...2.6

100 s: (1.8...2.8)

cm3 : 0.8 Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm 1.80...2.00

2nd speed rpm : 450

: 3.10...3.50 travel mm

3rd speed rpm : 600

: 5.10...5.50 travel mm

4th speed rpm : 1000

travel mm : 8.10...8.30

5th speed rpm : 1200

travel mm : 9.60...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1200

Del.quantity : 250.U...231.0) : 5.00 Spread cm3 1000 : (9.00)RATED SPEED 1st version Control Lever position degrees: 62...70 Testina: 1st rack travel in: 12.90 rpm : 1150...1180 Speed 2nd rack travel in: 4.00 rpm : 1295...1305 Speed 4th rack travel in: 1400 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 60...72 Testing: Speed rpm : 275 Minimum rack trave: 8.10 Speed man Rack travel in mm : 6.60...6.80 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 14.50...14.60 : 650 2nd speed rpm Rack travel in m: 13.30...13.70 3rd speed rpm : 1100 Rack travel in m: 13.90...14.10 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1000 rom Pressure hPa : 1200 Rack travel mm : 14.50...14.60 Measurement Speed

1/min: 1000 1st pressure hPa : -Rack travel in m: 9.20...9.60 2nd pressure hPa : 325 Rack travel in m: 10.60...10.70

Rack travel in m: 13.20...13.60 START CUT-OUT 1/min: 290 (300) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 650 Del.quantity cm3/: 205.0...211.0 1000 s: (202.0...214.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: rpm : 1000 Speed Del.quantity cm3/: 94.5...98.5 1000 s: (92.5...100.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.90 rpm : 1150...1180 Speed STARTING FUEL DELIVERY

Speed rpm : 100 tel.quantity cm3/ : 180.0...220.0 1000 s: (175.0...225.0) Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 20.0...26.0 1000 s: (18.0...28.0)

cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

: C.D.C. # 3922427

Start-of-delivery mark = 5.5° after start of delivery cyl. 1.

Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

3rd pressure hPa : 765

Note remarks

Test sheet : CLIM : 4.6.94 Edition : 02.94 Replaces : ISO-4113 Test oil

Combination no. : 0 402 736 837

Injection pump

Pump designation: PES6P120A120RS7265 : 0 412 726 882 EP type number

Governor

Governor design. : RQV400...1250PA964

-1.5K

: 0 421 815 332 Governer no.

Customer-spec. information Customer : C.D.C.

: 6CTA-A Engine

: 186.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

: 1 688 901 103 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.95...4.05 Prestroke mm : (3.90...4.10)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm: 13.80...13.90

Del.guantity cm3/: 21.5...21.7

100 s: (21.2...22.0)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350 2nd speed

Rack travel in mm: 6.3...6.7 Del.quantity cm3/: 2.2...2.8 100 s: (2.0...3.0)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350 travel mm

: 1.80...2.00 2nd speed

rpm : 450

travel mm : 3.10...3.50 3rd speed rpm : 600

: 5.10...5.50 travel mm

4th speed rpm : 1000

travel mm : 8.10...8.30

rpm : 1200 5th speed

: 9.60...10.00 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 1200

Del.quantity : 215.5...217.5 1000 : (212.5...220.5) cm3 Spread : 5.00 1000 : (9.00)RATED SPEED 1st version Control lever position degrees: 114...126 Testing: 1st rack travel in: 12.40 Speed rpm : 1150...1180 2nd rack travel in: 4.00 Speed rpm : 1295...1305 4th rack travel in: 1400 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 62...74 Testing: Speed : 275 rpm Minimum rack trave: 8.10 rpm : 350 Speed Rack travel in mm : 6.30...6.70 CONSTANT REGULATION rpm : 325...515 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 13.80...13.90 2nd speed rpm : 650 Rack travel in m: 13.10...13.50 3rd speed rpm : 1100 Rack travel in m: 13.40...13.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1000 rpm hPa : 1200 Pressure Rack travel mm : 13.80...13.90 Measurement 1/min: 1000 Speed 1st pressure hPa : -Rack travel in m: 9.20...9.60 2nd pressure hPa : 325

Rack travel in m: 10.60...10.70

3rd pressure hPa : 765

START CUT-OUT Speed 1/min : 290 (300) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 650 Del.quantity cm3/: 205.0.. 211.0 1000 s: (202.0...214.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 1000 Del.quantity cm3/ : 94.5...98.5 1000 s: (92.5...100.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.40 Speed rpm : 1150...1180 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 180.0...220.0 1000 s: (175.0...225.0) Rack travel in mm : 12.00...13.00 LOW IDLE Speed : 350 rpm Rack travel in mm : 6.30...6.70 Del.quantity cm3/: 22.0...28.0 1000 s: (20.0...30.0) Spread cm3 : 8.00 1000 s: (12.00) Remarks: : C.D.C # 3922449 Start-of-delivery mark = 5.5° after start of delivery cyl. 1. Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

Rack travel in m: 13.10...13.50

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : CUM Edition : 9.6.94 Replaces : 02.94 Test oil : ISO-4113

Combination no. : 0 402 736 838

Injection pump

Pump designation : PES6P120A120RS7275 EP type number : 0 412 725 886

Governor

Governor design. : RQV400...1250PA964

-16K

Governer no. : 0 421 815 334

Customer-spec. information Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 119.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 105...125

Test nozzle holder

: 1 688 901 103 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.55...3.65 Prestroke mm

: (3.50...3.70) Rack travel in mm : 9.00...12.00

: 1-5- 3- 6- 2-Firing order

Phasing 0-60-120-130-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 15.3...15.4

100 s: (14.9...15.7)

cm3 : 0.8 Spread

100 s: (1.2)

rpm : 400 2nd speed

Rack travel in mm: 6.0...64 Del.quantity cm3/ : 1.4...2.0

100 s: (1.2...2.2) cm3 : 0.4

100 s: (0.8)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

Spread

rpm : 400 1st speed

: 1.40...1.60 travel mm

rpm : 500 2nd speed

: 2.30...2.70 travel mm

3rd speed rpm : 800

: 4.80...5.20 travel mm

4th speed rpm : 1250

: 6.90...7.10 travel mm

rpm : 1500 5th speed

travel mm : 8.30...8.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 1200

G01

: 152.5...154.5 Del.quantity 1000 : (149.5...157.5) cm3 : 8.00 Spread 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 110...122 Testina: 1st rack travel in: 12.40 rpm : 1310...1340 **besa** 2nd rack travel in: 4.00 rpm : 1560...1570 Speed 4th rack travel in: 1675 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 65...77 Testing: Speed rpm : 300 Minimum rack trave: 7.70 Speed : 400 rpm Speed Rack travel in mm : 6.00...6.40 CONSTANT REGULATION rpm : 325...519 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 13.40...13.50 rpm : 800 2nd speed Rack travel in m: 11.60...12.00 rd speed rpm : 500 Rack travel in m: 11.20...11.60 3rd speed rpm : 900 4th speed Rack travel in m: 12.00...12.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1250 rpm hPa : 1200 Pressure Rack travel mm : 13.40...13.50 Measurement Speed 1/min : 1250 1st pressure hPa : -Rack travel in m: 10.30...10.70 2nd pressure hPa : 265

Rack travel in m: 11.10...11.20 3rd pressure hPa : 440 Rack travel in m: 12.70...13.10 START CUT-OUT 1/min: 280 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 900 Del.quantity cm3/: 130.5...136.5 1000 s: (127.5...139.5) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 1250 Del.quantity cm3/: 108.5...112.5 1000 s: (106.5...114.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.40 rpm : 1310...1340 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 13.00...14.00 LOW IDLE Speed rpm : 450 Rack travel in mm : 6.00...6.40 Del.quantity cm3/: 14.0...20.0 1000 s: (12.0...22.0) Spread cm3 : 4.00 1000 s: (8.00) Remarks: : C.D.C # 3921918 Start-of-delivery blocking 6,25° after

start of delivery of cylinder no. 1.

Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

Note remarks

Test sheet : CUM : 4.6.94 Edition : 21.01.94 Replaces Test oil : ISO-4113

Combination no. : 0 402 736 839

Injection pump

Pump designation : PES6P120A120RS7265 EP type number : 0 412 726 882

Governor

: RQV350...1100PA964 Governor design.

-17K

: 0 421 815 335 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6CTA-A

: 167.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 103 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x60C

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.95...4.05 Prestroke mm

: (3.90...4.10)

Rack travel in mm : 9.00...12.00 Firing order : 1-5- 3- 6- 2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 19.7...19.9

100 s: (19.4...20.2)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 6.2...6.6

Del.quantity cm3/: 2.0...2.6

100 s: (1.8...2.8)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 2.10...2.40 travel mm

2nd speed rpm : 450

: 3.20...3.60 travel mm 3rd speed rpm : 900

travel mm

: 5.60...6.00

4th speed rpm : 1200

: 8.10...8.30 travel mm

5th speed : 1400 rpm

: 10.20...10.60 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1200

: 197.0...199.0 Del.quantity 1000 : (194.0...202.0) cm3 : 5.00Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 109...121 Testing: 1st rack travel in: 11.90 Speed rpm : 1250...1280 2nd rack travel in: 4.00 Speed rpm : 1380...1390 4th rack travel in: 1450 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 64...76 Testing: speed rpm : 275 Minimum rack trave: 7.90 Speed : 350 rpm Speed Rack travel in mm : 6.20...6.60 CONSTANT REGULATION rpm : 350...500 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 13.20...13.30 : 650 2nd speed rpm Rack travel in m: 12.20...12.60 3rd speed rpm : 1200 Rack travel in m: 12.90...13.10 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1100 rpm hPa : 1200 Pressure Rack travel mm : 13.20...13.30 Measurement Speed 1/min : 1100 1st pressure hPa : -Rack travel in m: 8.50...8.90 2nd pressure hPa : 255 Rack travel in m: 9.70...9.80 3rd pressure hPa : 520

Rack travel in m: 11.60...12.00 START CUT-OUT Speed 1/min: 290 (300) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 650 Speed Del.quantity cm3/: 183.5...189.5 1000 s: (180.5...192.5) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 1100 Del.quantity cm3/: 85.0...89.0 1000 s: (83.0...91.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.90 Speed rpm : 1250...1280 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 195.0...235.0 1000 s: (190.0...240.0) Rack travel in mm : 12.00...13.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.20...6.60 Del.quantity cm3/: 20.0...26.0 1000 s: (18.0...28.0) Spread cm3 : 8.00 1000 s: (12.00) Remarks: : C.D.C. # 3922424 Start-of-delivery blocking 5,25° after start of delivery of cylinder no. 1. Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

Note remarks

Test sheet : CUM : 4.6.94 Edition : 21.01.94 Replaces Test oil : ISO-4113

Combination no. : 0 402 736 840

Injection pump

Pump designation : PES6P120A120RS7265 EP type number : 0 412 726 882

Governor

Governor design. : RQV350...1100PA964

-18K

Governer no. : 0 421 815 336

Customer-spec. information Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 157.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 103 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.95...4.05 Prestroke mm

: (3.90...4.10) Rack travel in mm : 9.00...12.00

Firing order : 1-5- 3- 6- 2-

Phasina 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Pack travel in mm : 12.70...12.80

Del_quantity cm3/: 18.0...18.2

100 s: (17.7...18.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm: 6.4...6.8

Del.quantity cm3/: 2.0...2.6 100 s: (1.8...2.8)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 2.10...2.40

2nd speed rpm : 450

: 3.20...3.60 travel mm

3rd speed rpm : 900

: 5.60...6.00 travel mm

4th speed rpm : 1200

travel mm : 8.10...8.30

5th speed rpm : 1400

: 10.20...10.60 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1200

Del.quantity : 180.0...182.0 1000 : (177.0...185.0) Spread cm3 : 5.00 1000 : (9.00) RATED SPEED ist version Control Lever position degrees: 110...122 Testing: 1st rack travel in: 11.40 rpm : 1250...1280 Speed 2nd rack travel in: 4.00 rpm : 1380...1390 Speed 4th rack travel in: 1450 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 61...73 Testing: Speed rpm : 275 Minimum rack trave: 7.90 Speed rpm Rack travel in mm : 6.40 ... 6.80 CONSTANT REGULATION rpm : 350...500 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.70...12.80 nd speed rpm : 650
Rack travel in m: 11.70...12.10 2nd speed 3rd speed rpm : 1200 Rack travel in m: 12.40...12.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1100 rpm hPa : 1200 Pressure Rack travel mm : 12.70...12.80 Measurement 1/min: 1100 Speed 1st pressure hPa : -Rack travel in m: 8.60...9.00 2nd pressure hPa : 255 Rack travel in m: 9.70...9.80 3rd pressure hPa : 520

Rack travel in m: 11.50...11.90 START CUT-OUT 1/min: 290 (300) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 650 Del.quaritity cm3/: 167.0...173.0 1000 s: (164.0...176.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rom : 1100 Del.quantity cm3/: 85.0...89.0 1000 s: (83.0...91,0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.40 Speed rom : 1250...1280 STARTING FUEL DELIVERY Speed rom : 100 Del.quantity cm3/: 190.0...230.0 1000 s: (185.0...235.0) Rack travel in mm : 12.00...13.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.40...6.80 Del.quantity cm3/: 20.0...26.0 1000 s: (18.0...28.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : C.D.C. # 3922476 Start-of-delivery mark = 5.5° after start of delivery cyl. 1. Delivery-valve spring pre-tension = 6.30...6.40 mm.

Permissible alteration from 6.00...6.70

Note remarks

Test sheet : CUM : 4.6.94 Edition Replaces : 02.94 Test oil : ISO-4113

Combination no. ': 0 402 736 841

Injection pump

Pump designation : PES6P120A120RS7275 EP type number : 0 412 726 886

Governor

Governor design. : RQV400...1250PA964

-19K

Governer no. : 0 421 815 342

Customer—spec. information Customer : C.D.C.

: 6BTA-A Engine

: 130.5 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 105...125

Test nozzle holder

: 1 688 901 103 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.55...3.65 Prestroke mm

: (3.50...3.70)

Rack travel in mm : 9.00...12.00 Firing order : 1- 5- 3- 6- 2-

Phasing

U-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 15.9...16.1

100 s: (15.6...16.4)

Spread cm3 : 0.8

100 s: (1.2)

rpm : 400 2nd speed

Rack travel in mm : 5.9...6.3 Del.quantity cm3/ : 1.4...2.0 100 s: (1.2...2.2)

Spread cm3 : 0.4

100 s: (0.8)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 400 1st speed

travel mm : 1.30...1.50

500 2nd speed rpm

: 2.30...2.70 travel mm

3rd speed : 800 rpm

travel mm : 4.80...5.20

4th speed rpm : 1250

travel mm : 6.90...7.10

5th speed rpm : 1500

: 8.30...8.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1200

Del.quantity : 159.5...161.5 Rack travel in m: 11.30...11.40 1000 : (156.5...164.5) 3rd pressure hPa : 430 cm3 : 8.00 Spread Rack travel in m: 12.80...13.20 1000 : (12.00) START CUT-OUT RATED SPEED 1/min : 250 (260) Speed 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 111...123 Testina: 1st version 1st rack travel in: 12.40 Aneroid pressure h: 1200 rpm : 1300...1330 Speed Speed : 900 rpm Del.quantity cm3/: 135.0...141.0 1000 s: (132.0...144.0) 2nd rack travel in: 4.00 : 1560...1570 Speed rom 4th rack travel in: 1675 Spread cm3 : 8.00 Speed rpm : 0.00...1.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 1250 Del.quantity cm3/ : 110.0...114.0 LOW IDLE 1 Control lever position degrees: 65...77 1000 s: (108.0...116.0) Testing: Speed BREAKAWAY nom Minimum rack trave: 7.40 : 400 1st version rpm Rack travel in mm : 5.90...6.30 1mm rack travel less than CONSTANT REGULATION full load rack tr: 12.40 : 325...519 Speed rpm : 1300...1330 rpm Speed TORQUE CONTROL STARTING FUEL DELIVERY Dimension a mm : ? Torque control curve - 1st version : 1250 1st speed MON Speed rpm : 100 Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack travel in m: 13.40...13.50 : 800 2nd speed rpm Rack travel in m: 11.70...11.90 Rack travel in mm : 13.00...14.00 3rd speed rpm : 500 Rack travel in m: 11.30...11.70 th speed rpm : 900 Rack travel in m: 12.00...12.20 LOW IDLE 4th speed rpm Speed : 400 Lbw Rack travel in mm : 5.90...6.30 Aneroid/Altitude Del.quantity cm3/: 14.0...20.0 Compensator Test 1000 s: (12.0...22.0) cm3 : 4.00Spread 1000 s: (8.00) 1st version Setting Remarks: Speed : 1250 : C.D.C. # 3921920 rpm hPa : 1200 Pressure Rack travel mm : 13.40...13.50 Start-of-delivery blocking 6,25° after start of delivery of cylinder no. 1. Measurement 1/min: 1250 Speed Delivery-valve spring pre-tension = 6.30...6.40 mm. 1st pressure hPa : -Rack travel in m: 10.20...10.60 Permissible alteration from 6.00...6.70 2nd pressure hPa : 260

G09

Note remarks

Test sheet : CUM
Edition : 4.6.94
Replaces : 16.07.93
Test oil : ISU-4113

Combination no. : 0 402 736 842

Injection pump

Pump designation : PES6P120A120RS7281 EP type number : 0 412 726 890

Governor

Governor design. : RQV400...1250PA1060

-1K

Governer no. : 0 421 815 344

Customer-spec. information Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 119.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 105...125

Test nozzle holder

assembly : 1 688 901 103

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65 : (3.50...3.70) Rack travel in mm : 9.00...12.00

Firing order : 1-5- 3- 6- 2-

4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ}$: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 13.30...13.40

Del.quantity cm3/: 15.2...15.4

100 s: (14.9...15.7)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 400.0 Rack travel in mm : 6.0...6.4 Del.quantity cm3/ : 1.5...2.1 100 s: (1.3...2.3)

Spread cm3 : 0.4

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400

travel mm : 1.40...1.60

3rd speed rpm : 800 travel mm : 4.00...4.40

travel mm : 4.00... 4th speed rpm : 1250

travel mm : 6.90...7.10

5th speed rpm : 1500

travel mm : 9.10...9.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1250 Aneroid pressure h: 1200 Del.quantity : 152.5...157.5) Spread cm3 : 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 114...126 Testing: 1st rack travel in: 12.30 rpm : 1310...1340 Speed 2nd rack travel in: 4.00 rpm : 1475...1485 4th rack travel in: 1550 rpm : 6.60...1.00 Screed LOW IDLE 1 Control lever position degrees: 67...79 Testing: Speed : 275 rpm Minimum rack trave: 7.80 : 400 rpm Rack travel in mm : 6.00...6.40 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 13.30...13.40 2nd speed rpm : 800 Rack travel in m: 11.80...12.20 3rd speed rpm : 500 Rack travel in m: 11.40...11.80 4th speed rpm : 900 Rack travel in m: 12.20...12.60 Anaroid/Altitude Compensator Test 1st version Setting Speed : 1250 rpm hPa : 1200 Pressure Rack travel mm : 13.30...13.40 Measurement 1/min: 1250 Speed

Speed Speed Speed LOW IDLE Speed Spread Remarks:

Rack travel in m: 11.10...11.20 3rd pressure hPa : 440 Rack travel in m: 12.70...13.10 START CUT-OUT 1/min : 280 (290) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 800 Del.quantity cm3/: 127.5...133.5 1000 s: (124.5...136.5) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: rpm : 1250 Del.quantity cm3/: 108.5...112.5 1000 s: (106.5...114.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.30 rpm : 1310...1340 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm: 13.00...14.00 rpm : 400 Rack travel in mm : 6.00...6.40 Del.quantity cm3/: 15.0...21.0 1000 s: (13.0...23.0) cm3 : 4.001000 s: (8.00) : C.D.C. # 3925085 Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70 Start-of-delivery blocking 6,25° after start of delivery of cylinder no. 1.

1st pressure hPa : -

2nd pressure hPa : 265

Rack travel in m: 10.30...10.70

Note remarks

Test sheet : CUM Edition : 4.6.94 : 16.08.93 Replaces Test oil : ISO-4113

Combination no. : 0 402 736 843

Injection pump

Pump designation : PES6P120A120RS7281 EP type number : 0 412 726 890

Governor

Governor design. RQV400...1250PA1060K

Governer no. : 0 421 815 343

Customer-spec. information Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 130.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 105...125

Test nozzle holder

: 1 688 901 103 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.55...3.65 Prestroke mm

: (3.50...3.70)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. ro. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm: 13.50...13.60

Del.quantity cm3/: 15.5...15.7

100 s: (15.2...16.0)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 400.0 Rack travel in mm: 6.1...6.5

Del.quantity cm3/: 1.4...2.0 100 s: (1.2...2.2)

Spread cm3 : 0.4100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 400 1st speed travel mm : 1.40...1.60

2nd speed rpm : 550 travel mm : 2.50...2.90

rpm : 800 3rd speed

: 4.00...4.40 travel mm

4th speed : 1250 rpm

travel mm : 6.90...7.10

5th speed : 1500 rpm

: 9.10...9.50 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 1200

Del.quantity : 755.5...160.5) Spread cm3 : 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 111...123 Testing: 1st rack travel in: 12.50 rpm : 1305...1335 Speed 2nd rack travel in: 4.00 rpm : 1470...1480 Speed 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 66...78 Testing: Speed rpm : 300 Minimum rack trave: 7.70 Speed riom : 400 Rack travel in mm : 6.10...6.50 CONSTANT REGULATION Speed rpm : 350...500 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 13.50...13.60 2nd speed rpm : 800 Rack travel in m: 11.60...11.80 3rd speed rpm : 500 Rack travel in m: 11.20...11.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1250 hPa : 1200 Pressure Rack travel mm : 13.50...13.60 Measurement Speed 1/min: 1250 1st pressure hPa : -Rack travel in m: 10.40...10.80

START CUT-OUT 1/min: 280 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 800 Del.quantity cm3/: 124.0...130.0 1000 s: (121.5...132.5) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 1250 Del.quantity cm3/: 109.5...113.5 1000 s: (107.5...115.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.50 Spead rpm : 1305...1335 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 13.00...14.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 6.10...6.50 Del.quantity cm3/: 14.0...20.0 1000 s: (12.0...22.0) Spread cm3 : 4.001000 s: (8.00) Remarks: : C.D.C. # 3925086 Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70 Start-of-delivery blocking 6,25° after start of delivery of cylinder no. 1.

Rack travel in m: 13.00...13.40

2nd pressure hPa : 260

3rd pressure hPa : 430

Rack travel in m: 11.30...11.40

Note remarks

Test sheet : CUM
Edition : 4.6.94
Replaces : 02.94
Test oil : 150-4113

Combination no. : 0 402 736 844

Injection pump

Fump designation : PES6P12UA12ORS7287 EP type number : 0 412 726 896

Governor

Governor design. : RQV400...1250PA964

-21K

Gowerner no. : 0 421 815 354

Customer—spec. information Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 171.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

assembly : 1 688 901 103

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 10.00...13.00 Firing order : 1-5-3-6-2-

4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 14.80...14.90

Del.quantity cm3/: 19.3...219.5

100 s: (19.0...19.8)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 400.0

Rack travel in mm : 6.4...6.8 Del.quantity cm3/ : 2.0...2.6

100 s: (1.8...2.8)

Spread cm3 : 0.4 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400

travel mm : 1.40...1.60

2nd speed rpm : 550

travel mm : 3.10...3.50

3rd speed rpm: 800

travel mm : 4.30...4.70

4th speed rpm : 1250

travel mm : 7.00...7.20

5th speed rpm : 1500

travel mm : 9.20...9.60

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1475

Rack travel in mm : 9.00...12.00

Measurement FULL LOAD DELIV. AT FULL LOAD STOP Speed 1/min: 1150 1st version 1st pressure hPa : -Rack travel in m: 10.20...10.60 Speed rpm : 1150 Aneroid pressure h: 1200 2nd pressure hPa : 355
Rack travel in m: 11.30...11.40 : 193.5...195.5 Del. quantity 1000 : (190.5...198.5) 3rd pressure hPa : 645 Spread cm3 : 8.00 Rack travel in m: 13.30...13.70 1000 : (12.00) START CUT-OUT RATED SPEED Speed 1/min: 315 (325) 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 114.0...126.0 Testina: 1st version 1st rack travel in: 13.40 Aneroid pressure h: 1200 Speed rpm : 1300...1330 : 900 Speed rpm. 2nd rack travel in: 4.00 Del.quantity cm3/: 179.0...185.0 1000 s: (176.0...188.0) : 1480...1490 Speed L'DIE 4th rack travel in: 1550 Spread cm3 : 8.001000 s: (12.0) Speed : 0.00...1.00 rpm Aneroid pressure h: -Speed rpm: 1150
Del.quantity cm3/: 94.5...98.5
1000 s: (92.5...100.5) LOW IDLE 1 Control lever position degrees: 67...79 Testing: Speed : 300 BREAKAWAY rpm Minimum rack trave: 9.00 Speed : 400 mom 1st version Rack travel in mm : 6.40...6.80 1mm rack travel less than CONSTANT REGULATION full load rack tr: 13.40 rpm : 350...500 Speed Speed rpm : 1300...1330 TORQUE CONTROL STARTING FUEL DELIVERY Dimension a mm : ? Torque control curve - 1st version 1st speed : 1150 rpm Speed : 100 rpm Rack travel in m: 14.80...14.90 Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) 2nd speed : 800 rom Rack travel in m: 13.80...14.20 Rack travel in mm : 12.00...13.00 3rd speed : 1250 rpm Rack travel in m: 14.40...14.60 LOW IDLE 4th speed rpm : 900 Rack travel in m: 14.00...14.40 Speed : 400 rpm Rack travel in mm : 6.40...6.80 Aneroid/Altitude Del.quantity cm3/: 18.0...26.0 Compensator Test 1000 s: (78.0...28.0) Spread cm3 : 4.001000 s: (8.00) 1st version Setting Remarks: Speed rpm : 1150 : C.D.C. # 3921925 hPa : 1200 Pressure Rack travel mm : 14.80...14.90 Delivery-valve spring pre-tension = 6.30...6.40 mm.

Permissible alteration from 6.00...6.70

Start-of-delivery blocking 6,25° after start of delivery of cylinder no. 1.

Note remarks

Test sheet : CUM Edition : 4.6.94 Replaces

Test oil : 150-4113

Combination no. : 0 402 736 845

Injection pump

Pump designation: PES6P120A120RS7286 EP type number : 0 412 726 894

Governor

: RQV350...1110PA964 Governor design.

-20K

: 0 421 815 352 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 224.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 95...115

Test nozzle holder

: 1 688 901 103 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x3.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.95...4.05 : (3.90...4.10) Prestroke mm

Fack travel in mm : 9.00...12.00 : 1-5- 3- 6- 2-Firing order

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyt. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 15.20...15.30

Del.quantity cm3/: 24.0...24.2

100 s: (23.7...24.5)

cm3 : 0.8Spread

100 s: (1.2)

2nd speed rpm : 350.0 Rack travel in mm: 6.4...6.8 Del.quantity cm3/: 2.1...2.7 100 s: (1.9...2.9)

cm3 : 0.4Spread 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 350 : 2.10...2.40 1st speed

travel mm 2nd speed rpm : 450

travel mm

: 3.20...3.60 : 900 3rd speed rpm

: 5.60...6.00 travel mm 4th speed : 1200

rpm : 8.10...8.30 travel mm

5th speed : 1400 rpm

travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1200 Del.quantity : 240.0...242.0 1000 : (237.0...245.0) Spread cm3 : 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 113.0...125.0 Testing: 1st rack travel in: 13.60 rpm : 1240...1270 Speed 2nd rack travel in: 4.00 rpm : 1395...1405 Speed 4th rack travel in: 1500 1.00 ... 1.00Speed LOW IDLE 1 Control Lever position degrees: 65...79 Testing: Speed rom : 275 Minimum rack trave: 8.30 : 350 rom Rack travel in mm : 6.40...6.80 CONSTANT REGULATION rpm : 330...520 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 15.20...15.30 2nd speed rpm : 750 Rack travel in m: 13.50...13.90 3rd speed rpm : 1200 Rack travel in m: 14.60...14.80 4th speed rpm : 650 Rack travel in m: 13.20...13.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1100 rpm Pressure hPa : 1200

Rack travel mm : 15.20...15.30

Measurement Speed

1/min: 1100

1st pressure hPa : -

Rack travel in m: 9.00...9.40

2nd pressure hPa : 335

Rack travel in m: 10.90...11.00

3rd pressure hPa : 715

Rack travel in m: 13.60...14.00

START CUT-OUT

1/min : 290 (300) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 rpm : 750

Del.quantity cm3/: 205.0...211.0 1000 s: (202.0...214.0)

cm3 : 8.00

Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 77.0...81.0

1000 s: (75.0...83.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.60

Speed rpm : 1240...1270

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 160.0...200.0 1000 s: (155.0...205.0) Rack travel in mm : 11.00...12.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.40...6.80 Del.quantity cm3/: 21.0...27.0 1000 s: (19.0...29.0)

cm3 : 4.00 Spread 1000 s: (8.00)

Remarks:

: C.D.C. # 3922425

Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

Start-of-delivery blocking 6,25° after

start of delivery of cylinder no. 1.

G20

Note remarks

Test sheet : CUM : 4.6.94 Edition : 02.94 Replaces : ISO-4113 Test oil

Combination no. : 0 402 736 846

Injection pump

Pump designation : PES6P120A120RS7287

: 0 412 726 896 EP type number

Governor

Governor design. : RQV400...1250PA1081K

: 0 421 815 360 Governer no.

Customer-spec. information Customer : C.D.C

Engine : 6BTA-A

: 156.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

: 1 688 901 103 assembly

Opening

pressure, bar : 207...210

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bai: 22...24

Prestroke mm : 3.55...3.65

: (3.50...3.70) Rack travel in mm : 10.00...13.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 13.90...14.00

Del.guantity cm3/: 17.5...17.7

100 s: (17.2...18.6)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 420

Rack travel in mm: 5.1...5.5 Del.quantity cm3/: 1.4...2.0

100 s: (1.2...2.2)

cm3 : 0.4Spread

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 4001st speed

travel mm 1.40...1.60

2nd speed 550 rpm

: 3.10...3.50 travel mm

3rd speed : 800 LLDW.

: 4.30...4.70 travel mm

4th speed : 1250 rpm

: 7.00...7.20 travel mm

5th speed rpm : 1500

travel mm : 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 1200

Del.quantity : 175.0...180.0)

Spread

: 8.00 cm3

1000 : (12.00)

RATED SPEED

1st version

Control Lever

position degrees: 112...124

Testina:

1st rack travel in: 12.90

Speed rpm : 1295,...1325

2nd rack travel in: 4.00

Speed rpm : 1470...1480 4th rack travel in: 1550

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 66...78

Testina:

Speed rpm

: 300 Minimum rack trave: 8.90

rpm : 420

Rack travel in mm : 5.10...5.50

CONSTANT REGULATION

riom : 345...495 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 13.90...14.00

2nd speed rpm : 300

Rack travel in m: 11.90...12.10 3rd speed rpm : 500 Rack travel in m: 10.70...11.10

Anercic/Altitude

Compensator Test

1st version

Setting

Speed : 1250 rpm

hPa : 1200 Pressure

: 13.90...14.00 Rack travel mm

Measurement

1/min: 1250 Speed

1st pressure hPa :-

Rack travel in m: 9.60...10.00

2nd pressure hPa : 305

Rack travel in m: 10.90...11.00

3rd pressure hPa : 585

Rack travel in m: 12.70...13.10

START CUT-OUT

Speed 1/min: 315 (325)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed : 800 rpm

Del.quantity cm3/: 127.0...133.0 1000 s: (124.0...136.0) Spread cm3 : 8.00 1000 s: (12.0)

Aneroid pressure h: rpm : 1250 Speed

Del.quantity cm3/: 93.0...97.0

1000 s: (91.0...99.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.90

rpm : 1295...1325

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 135.0...175.0

1000 s: (130.0...180.0)

Rack travel in mm : 12.00...13.00

LOW IDLE

rpm : 420 Speed

Rack travel in mm : 5.10...5.50 Del.quantity cm3/: 14.0...20.0

1000 s: (12.0...22.0)

Spread cm3 : 4.00

1000 s: (8.00)

Remarks:

: C.D.C. # 3924903

Delivery-valve spring pre-tension = 6.30...6.40 mm.

Permissible alteration from 6.00...6.70

Start-of-delivery mark 6° cam angle

after start of delivery cyl. 1

Note remarks

Test sheet : CUM Edition : 4.6.94 : 02.94 Replaces : ISO-4113 Test oil

: 0 402 736 847 Combination no.

Injection pump

Pump designation : PES6P120A120RS7287 EP type number : 0 412 726 896

Governor

Governor design. : RQV400...1250PA964

-22K

Governer no. : 0 421 815 366

Customer-spec. information Customer : C.D.C.

Engine : 6BTA-A

: 156.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

: 1 688 901 103 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm

: 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 10.00...13.00 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 14.30...14.40

Del.quantity cm3/: 17.7...17.9

100 s: (17.4...18.2)

cm3 : 0.8 Spread

100 s: (1.2)

rpm : 400 2nd speed

Rack travel in mm: 6.0...6.4 Del.guantity cm3/: 1.6...2.2

100 s: (1.4...2.4)

cm3 : 0.4Spread 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 400 1st speed

travel mm : 1.40...1.60

: 550 2nd speed rpm

: 3.10...3.50 travel mm

3rd speed : 800 rpm

: 4.30...4.70 travel mm : 1250

4th speed rpm

: 7.00...7.20 travel mm

: 1500 5th speed rpm

: 9.20...9.60 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1200

Del.quantity : 1//.u...182.0) cm3 : 8.00 Spread 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 112...124 Testing: 1st rack travel in: 13.10 rpm : 1300...1330 Speed 2nd rack travel in: 4.00 Speed rpm : 1475...1485 4th rack travel in: 1600 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 66...78 Testing: : 300 Speed rom Minimum rack trave: 8.80 : 400 Speed rom Rack travel in mm : 6.00...6.40 CONSTANT REGULATION rpm : 345...495 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 14.30...14.40 2nd speed rpm : 800 Rack travel in m: 13.10...13.50 3rd speed rpm : 1250 Rack travel in m: 14.10...14.30 Aneroid/Altitude Compensator Test 1st version Setting Speed rom : 1150 hPa : 1200 Pressure Rack travel mm : 14.30...14.40 Measurement Speed 1/min: 1150 1st pressure hPa : -Rack travel in m: 10.40...10.80 2nd pressure hPa : 425 Rack travel in m: 11.40...11.50 3rd pressure hPa : 685

Rack travel in m: 13.20...13.60 START CUT-OUT 1/min: 315 (325) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 800 Del.quantity cm3/: 159.0...165.0 1000 s: (156.9...168.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 1150
Del.quantity cm3/ : 99.0...103.0
1000 s: (97.0...105.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.10 Speed rpm : 1300...1330 STARTING FUEL DELIVERY rpm : 100 Speed Del.guantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 12.00...13.00 LOW IDLE Speed rpm : 400
Rack travel in mm : 6.00...6.40
Del.quantity cm3/ : 16.5...22.5
1000 s: (14.5...24.5) cm3 : 4.00Spread 1000 s: (8.00) Remarks: : C.D.C. # 3921923 Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70 Start-of-delivery blocking 6,25° after start of delivery of cylinder no. 1.

Note remarks

Test sheet : CUM
Edition : 4.6.94
Replaces : 02.94
Test oil : ISO-4113

Combination no. : 0 402 736 848

Injection pump

Pump designation : PES6P12DA12ORS7314 EP type number : D 412 726 901

Governor

Governor design. : RQV400...1250PA964

-24K

Governer no. : 0 421 815 374

Customer—spec. information Customer : CDC

Engine : 68TA-A

1st version kW : 142.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

assembly : 1 688 901 103

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 10.00...13.00 Firing order : 1-5-3-6-2-

7

Phasing : 0-60-120-189-240-300

Tolerance $+ - ^{\circ} : 0.50(0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 14.20...14.30

Del.quantity cm3/: 16.5...16.7

100 s: (16.2...17.0)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 420

Rack travel in mm : 5.6...6.0 Del.quantity cm3/ : 1.0...1.6

100 s: (0.8...1.8)

Spread cm3 : 0.4 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400 travel mm : 1.40...1.60

2nd speed rpm : 550

travel mm : 3.10...3.50

3rd speed rpm : 800

travel mm : 4.30...4.70 4th speed rpm : 1250

travel mm : 7.00...7.20

5th speed rpm : 1500

travel mm : 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 1200

Del.quantity : 165.5...167.5 1000 : (162.5...170.5) cm3 : 8.00 1000 : (12.00) Spread RATED SPEED 1st version Control Lever position degrees: 112...124 Testina: 1st rack travel in: 12.80 rpm : 1295...1325 Speed 2nd rack travel in: 4.00 Speed rpm : 1465...1475 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 66...78 Testing: Speed rom : 300 Minimum rack trave: 9.80 : 420 rpm Rack travel in mm : 5.60...6.00 CONSTANT REGULATION rpm : 345...495 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 14.20...14.30 rpm : 800 2nd speed Rack travel in m: 13.00...13.40 3rd speed rpm : 1250 Rack travel in m: 13.80...14.00 Aneroid/Altitude Compensator Test 1st version Setting : 1150 Speed rpm hPa : 1200 Pressure Rack travel mm : 14.20...14.30 Measurement 1/min: 1150 Speed

Rack travel in m: 13.10...13.50 START CUT-OUT 1/min: 315 (325) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 800 Speed Del.quantity cm3/: 144.0...150.0 1000 s: (141.0...153.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 1150 Speed Del.quaratity cm3/: 106.5...110.5 1000 s: (104.5...112.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.80 rpm : 1295...1325 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 13.50...14.50 LOW IDLE Speed rpm : 420
Rack travel in mm : 5.60...6.00
Del.quantity cm3/ : 10.0...16.0
1000 s: (8.0...18.0) cm3 : 4.00Spread 1000 s: (8.00) Remarks: : C.D.C. # 3921922 Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70 Start-of-delivery blocking 5,75° after

start of delivery of cylinder no. 1.

1st pressure hPa : -

3rd pressure hPa : 500

Rack travel in m: 11.10...11.50

2nd pressure hPa : 375 Rack travel in m: 12.10...12.20 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN Edition : 11.6.94 Replaces Test oil : ISC-4113 Combination no. : 0 402 736 849 Injection pump Pump designation PES6P120A720/3LS7251 EP type number : 0 412 726 860 Governor Governor design. : RQV300...1000PA962 -12K Governer no. : 0 421 815 407 Customer-spec, information Customer : MAN Engine : D2866LF09 : 398.0 1st version kW Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 105 assembly **Opening** pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test Lines : 1 680 750 089 Outside diameter x Wall thickness x Lenath mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 4.80...4.90 : (4.75...4.95) Rack travel in mm : 15.00...16.00 Firing order : 6-2-4-1-5-3 Phasina 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.30(0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed ron: : 900 Rack travel in mm : 13.90...14.00 Del.quantity cm3/: 29.3...29.5 100 s: (29.0...29.8) Spread cm3 : 0.8100 s: (1.2) 2nd speed rpm : 300 Rack travel in mm : 5.0...5.4 Del.quantity cm3/ : 2.9...3.5 100 s: (2.6...3.8) cm3 : 0.8 Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 300 1st speed travel mm 1.29...1.79 374 2.31...2.81 2nd speed rpm travel mm 3rd speed rpm : 480 travel mm : 3.40...3.90 : 769 4th speed rpm travel mm : 6.70...7.20 5th speed : 1060 rpm travel mm : 10.14...10.64 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1120 Speed Rack travel in mm : 10.50...14.50 FULL LOAD DELIV. AT FULL LOAD STOP

Test pressure, bar: 25...27

2nd pressure hPa : 220 Rack travel in m: 9.40...9.5080 3rd pressure hPa : 720 1st version Speed rpm : 900 Aneroid pressure h: 1300 Del.quantity : 295.0...298.0) Rack travel in m: 11.70...12.10 cm3 : 10.00 START CUT-OUT 1000 : (14.00) Speed 1/min: 240 (260) RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 296...304 1st version Aneroid pressure h: 1300 Testina: Speed rpm : 1000 1st rack travel in: 12.40 Del.quantity cm3/: 266.0...272.0 rpm : 1040...1050 Speed 1000 s: (263.0...275.0) 2nd rack travel in: 4.00 Aneroid pressure h: 1300 rpm : 1125...1155 Speed rpm : 750 Speed Del.quantity cm3/: 284.0...290.0 1000 s: (281.0...293.0) 4th rack travel in: 1250 Speed rom : 0.00...1.00Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 168.0...171.0
1000 s: (165.0...173.0) LOW IDLE 1 Control lever position degrees: 248...256 Testina: Sceed mcיח **BREAKAWAY** Minimum rack trave: 6.70 rpm : 300 Speed 1st version Rack travel in mm : 5.10...5.30 1mm rack travel less than CONSTANT REGULATION full load rack tr: 12.40 Speed rpm : 270...390 Speed rpm : 1040...1050 TORQUE CONTROL STARTING FUEL DELIVERY Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 900 rpm : 100 Del.quantity cm3/: 195.0...225.0 1000 s: (191.0...229.0) Rack travel in m: 13.90...14.00 2nd speed rpm : 1000 Rack travel in m: 13.40...13.60 3rd speed rpm : 750 LOW IDLE Rack travel in m: 13.30...13.50 Speed rpm : 300 Rack travel in mm : 5.00...5.40 Del.quantity cm3/ : 29.0...35.0 Aneroid/Altitude Compensator Test 1000 s: (26.0...38.0) cm3 : 8.00 Spread 1st version 1000 s: (12.00) Setting Speed : 900 rom Remarks: Pressure hPa : 1300 : MAN-NR. 3-7373 Rack travel mm : 13.90...14.00 Setting and blocking of pointer of Measurement start-of-delivery sensor on cyl. 6 1/min: 900 Speed start of delivery 1st pressure hPa : -

Rack travel in m: 9.00...9.20

Note remarks

Test sheet : CUM : 4.6.94 Edition Replaces

Test oil : ISO-4113

Combination no. : 0 402 736 851

Injection pump

Pump designation : PES6P120A120RS7332 EP type number : 0 412 726 909

Governor

: RQV350...1000PA964 Governor design.

-24K

Governer no. : 0 421 815 411

Customer-spec. information Customer : CDC

Engine : 6CTA-A

: 205.0 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

assembly : 1 688 901 103

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05

: (3.90...4.10) Rack travel in mm : 9.00...12.00

: 1-5- 3- 6- 2-Firing order

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50(0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 15.10...15.20

Del.quantity cm3/: 23.4...23.6

100 s: (23.1...23.9)

Spread cm3 : 0.8

100 s: (1.2)

rpm : 350 2nd speed

Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 2.4...3.0

100 s: (2.2...3.2)

Spread cm3 : 0.4100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 1.80...2.00 travel mm

2nd speed rpm : 450

: 3.10...3.50 travel mm

3rd speed rpm : 600

: 5.10...5.50 rpm : 1000 travel mm

4th speed

travel mm : 8.10...8.30

5th speed rpm : 1200

: 9.60...10.00 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1200

Del.quantity : 234.0...236.0 1000 : (231.0...239.0) Spread cm3 : 8.00 1000 : (12.00) RATED SPEED 1st version Control Lever position degrees: 112...124 Testina: 1st rack travel in: 13.50 rpm : 1140...1170 Speed 2nd rack travel in: 4.00 rpm : 1295...1305 Speed 4th rack travel in: 1400 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 63...75 Testing: Speed rom : 275 Minimum rack trave: 8.20 rpm : 350 Rack travel in mm : 6.70...5.90 CONSTANT REGULATION rpm : 335...515 Speed TORQUE CONTROL. Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 15.10...15.20 2nd speed rpm : 650 Rack travel in m: 13.50...13.90

3rd speed rpm : 1100

Rack travel in m: 14.50...14.70 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1000 rom Pressure hPa : 1200 Rack travel mm : 15.10...15.20 Measurement 1/min: 1000 Speed

Rack travel in m: 13.30...13.70 START CUT-OUT 1/min : 290 (300) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 650 Del.quantity cm3/: 207.5...213.5 1000 s: (204.5...216.5) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 1000 Speed Del.quantity cm3/: 94.0...98.0 1000 s: (92.0...100.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.50 Speed rpm : 1140...1170 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 160.0...200.0 1000 s: (155.0...205.0) Rack travel in mm : 11.00...12.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.70...6.90 Del.quantity cm3/: 24.0...30.0 1000 s: (22.0...32.0) Spread cm3 : 8.00 1000 s: (12.00) Remarks: : C.D.C. # 3927924 Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70 Start-of-delivery mark = 5.5° after

start of delivery cyl. 1.

1st pressure hPa : -

2nd pressure hPa : 370

3rd pressure hPa : 825

Rack travel in m: 9.30...9.70

Rack travel in m: 10.70...10.80

Note remarks

Test sheet : CUM Edition : 4.6.94

Replaces : -

Test oil : ISO-4113

Combination no. : 0 402 736 852

Injection pump

Pump designation : PES6P120A120RS7332

EP type number : 0 412 726 909

Governor

Governor design. : RQV350...900PA964

-25K

Governer no. : 0 421 815 418

Customer-spec. information Customer : CDC

Engine : 6CTA-A

1st version kW : 205.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

assembly : 1 688 901 103

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05

: (3.90...4.10)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-

4

Phasing : 0-60-120-180-240-300

0.00 150-100-540-300

Tolerance $+ - ^{\circ} : 0.50(0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 15.20...15.30

Del.quantity cm3/: 23.8...24.0

100 s: (23.5...24.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm: 350

Rack travel in mm : 6.6...6.8

Del.quantity cm3/: 2.3...2.9 100 s: (2.1...3.1)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.60...1.80

2nd speed rpm : 450

travel mm : 3.00...3.40

3rd speed rpm: 600

travel mm : 5.20...5.60

4th speed rpm: 1000

travel mm : 8.40...8.60

5th speed rpm: 1150

travel mm : 9.80...10.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 900

Aneroid pressure h: 1200

: 238.0...240.0 1000 : (235.0...243.0) Del.quantity Spread cm3 : 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 113...125 Testina: 1st rack travel in: 13.90 Speed rpm : 1055...1085 2nd rack travel in: 4.00 Speed : 1215...1225 man 4th rack travel in: 1400 Speed : 0.00...1.00 rom LOW IDLE 1 Control lever position degrees: 63...75 Testina: Speed rpm : 275 Minimum rack trave: 8.10 Speed : 350 rpm Rack travel in mm : 6.60...6.80 CONSTANT REGULATION Speed rpm : 335...515 TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version : 900 1st speed rpm Rack travel in m: 15.20...15.30 : 650 2nd speed rom Rack travel in m: 14.00...14.40 rpm : 1000 3rd speed Rack travel in m: 14.90...15.10 Aneroid/Altitude Compensator Test 1st version Setting Speed : 900 rom hPa : 1200 Pressure Rack travel mm : 15.20...15.30 Measurement 1/min: 900 Speed 1st pressure hPa : -Rack travel in m: 9.30...9.70 2nd pressure hPa : 370 Rack travel in m: 10.70...10.80 3rd pressure hPa : 825

Rack travel in m: 13.20...13.60 START CUT-OUT Speed 1/min : 290 (300) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed : 650 rpm Del.quantity cm3/: 221.0...227.0 1000 s: (218.0...230.0) cm3 : 8.00Spread 1000 s: (12.0) Ameroid pressure h: -Speed rpm : 1000 Del.quantity cm3/ : 94.0...98.0 1000 s: (92.0...100.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.90 Speed rpm : 1055...1085 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 160.0...200.0 1000 s: (155.0...205.0) Rack travel in mm : 10.60...11.60 LOW IDLE Speed rpm : 350
Rack travel in mm : 6.60...6.80
Del.quantity cm3/: 23.0...29.0
1000 s: (21.0...31.0) Spread cm3 : 8.00 1000 s: (12.00) Remarks: : C.D.C. # 3927923

Delivery-valve spring pre-tension = 6.30...6.40 mm.
Permissible alteration from 6.00...6.70 mm

Start-of-delivery mark = 5.5° after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB : 11.6.94 Edition : 04.94 Replaces : ISO-4113 Test oil : 0 402 746 919 Combination no. Injection pump Pump designation : PES6P120A720LS7237 EP type number : 0 412 726 911 Governor Governor design. : RQ300/1100PA1013-4 Governer no. : 0 421 801 711 Customer-spec. information Customer : MERCEDES-BENZ Engine : 0M447 hA 1st version kW : 184.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 105 assembly Opening. : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 075

Outside diameter x Wall thickness : 8.00X2.50X1000 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 20.00...21.00 Firing order : 6-2-4-1-5-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.30 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm: 13.75...13.85

Del.quantity cm3/: 20.3...20.5

100 s: (20.0...20.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300 2nd speed

Rack travel in mm : 5.60...6.20 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8 Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 600

Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1400

: 203.0...205.0 Del.quantity 1000 : (200.0...208.0)

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm Rack travel in mm: 20.0

Testina: 1st rack travel in: 12.80 rpm : 1145...1161 Speed 2nd rack travel in: 4.00 rpm : 1245...1275 Speed 4th rack travel in: 1350 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.9 Testina: Speed rpm : 200 Minimum rack trave: 9.00 Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00 : 355...395 Speed rom Aneroid/Altitude Compensator Test 1st version Settina Speed rpm : 500 hPa : 600 Pressure Rack travel mm : 12.65...12.75 Measurement Speed 1/min: 500 1st pressure hPa : 950 Rack travel in m: 13.35...13.55 2nd pressure hPa : -Rack travel in m: 11.90...12.20 START CUIT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 rpm : 800 Del.quantity cm3/: 207.0...211.0 1000 s: (204.0...214.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 144.0...146.0

1000 s: (141.0...149.0)

cm3 : 8.001000 s: (12.0) **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 12.80

Speed rpm : 1145...1161

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

H07

Spread

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAC Edition : 4.6.94 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 968 Injection pump Pump designation : PES621204720RS7321 EP type number : 0 412 726 906 Governor Governor design. : RQV325...975PA944 -16K: D 421 815 390 Governer no. Customer-spec. information Customer : MACK Engine : E7-250A 1st version kW : 180.0 Rated speed : 1950 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 084 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 103 assembly Opening | pressure, bar : 207...210 Orifice plate diameter mm : 0,7 Test Lines : 1 680 750 008

: 3.25...3.35 : (3.20...3.40) Rack travel in mm : 11.00...13.00 Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING rpm: 975 1st speed Rack travel in mm : 12.90...13.00 Del.quantity cm3/: 26.9...27.1 100 s: (26.6...27.4) Spread cm3 : 0.5100 s: (0.9) rpm : 340.02nd speed Rack travel in mm: 4.7...5.1 Del.quantity cm3/: 3.7...4.3 100 s: (3.5...4.5) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 325 1st speed : 1.40...1.60 travel mm rpm : 450 2nd speed : 2.80...3.20 travel mm 3rd speed rpm : 950 travel mm : 7.90...8.10 4th speed rpm : 1200 : 10.20...10.60 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 975 Aneroid pressure h: 1200 : 269.5...271.5 Del.quantity 1000 : (266.5...274.5) Spread cm3 : 5.00 1000 : (9.00)

Prestroke mm

H08

Outside diameter x Wall thickness

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 8.00x2.50x600

(A) Injection pump setting values

Set equal delivery quant.

Insp. values in parentheses

x Lenath mm

RATED SPEED

1st version Control Lever

position degrees: 103...115

Testina:

1st rack travel in: 11.90

rpm : 1015...1025 Speed

2nd rack travel in: 4.00

rpm : 1170...1200 Speed

4th rack travel in: 1300

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 56...68

Testing:

Speed rpm : 275 Minimum rack trave: 6.00 rpm

Rack travel in mm : 4.70...5.10

CONSTANT REGULATION

rpm : 350...500 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

rpm : 975 1st speed

Rack travel in m: 12.90...13.00

rpm : 600 2nd speed

Rack travel in m: 12.50...12.70

: 500 3rd speed rpm

Rack travel in m: 11.60...12.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 975 man Pressure hPa : 1200

Rack travei mm : 12.50...13.00

Measurement

1/min: 975 Speed

1st pressure hPa : -

Rack travel in m: 8.90...9.30

2nd pressure hPa : 330

Rack travel in m: 9.70...9.80

3rd pressure hPa : 590

Rack travel in m: 11.50...11.90

START CUT-OUT

Speed 1/min : 250 (255)

HD9

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 600 Del.quantity cm3/ : 302.0...308.0

1000 s: (299.0...311.0)

Spread cm3 : 8.001000 s: (12.0)

Aneroid pressure h: 1200

rpm : 875

Del.quantity cm3/: 199.0...201.0 * 1000 s: (150.0...172.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/: 189.0...193.0 1000 s: (187.0...195.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90

rpm : 1015...1025 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 170.0...210.0

1000 s: (160.0...220.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340 Rack travel in mm : 4.70...5.10 Del.quantity cm3/: 37.0...43.0 1000 s: (35.0...45.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5212-P6

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

Note remarks

Test sheet : MAC Edition : 4.6.94

Replaces : -

Test oil : ISO-4113

Combination no. : 0 402 746 969

Injection pump

Pump designation : PES6P120A720RS7321

EP type number : 0 412 726 906

Governor

Governor design. : RQV325...875PA944

-17K

Governer no. : 0 421 815 391

Customer—spec. information Customer : MACK

Engine : EM7-250

1st version kW : 187.0 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 084

Inlet press., bar: 2.80

Test nozzle holder

assembly : 1 688 901 103

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.25...3.35 : (3.20...3.40) Rack travel in mm : 11.00...13.00 Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 26.8...27.0

100 s: (26.5...27.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 340.0 Rack travel in mm : 4.6...4.8 Del.quantity cm3/: 3.1...3.7

100 s: (2.9...3.9)

Spread cm3 : 0.8 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.40...1.60

2nd speed rpm : 450 _travel mm : 3.30...3.70

3rd speed rpm: 700

travel mm : 7.90...8.10 4th speed rpm : 900

travel mm : 9.40...9.60

5th speed rpm : 1050

travel mm : 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875 Aneroid pressure h: 1200

Del.quantity : 268.5...270.5

1000 : (265.5...273.5)

Spread

cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 114...122

Testing:

1st rack travel in: 11.40 rpm : 915...925 Speed

2nd rack travel in: 4.00

rpm : 1035...1065 Speed

4th rack travel in: 1200

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 61...69

Testing:

Speed : 275 man Minimum rack trave: 6.00 : 340

Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

rpn : 350...500 Speed

riom

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 875

Rack travel in m: 12.40...12.50

rpm : 510 2nd speed

Rack travel in m: 13.10...13.30

3rd speed rpm : 400 Rack travel in m: 12.00...12.40

Aneroid/Altitude

Compensator Test

1st version

Settina

: 510 Speed rpm hPa : 1200 Pressure

Rack travel mm : 13.10...13.30

Measurement

1/min: 510 Speed

1st pressure hPa : -

Rack travel in m: 8.50...8.90

2nd pressure hPa : 285

Rack travel in m: 9.90...10.00

3rd pressure hPa : 570

Rack travel in m: 12.10...12.50

START CUT-OUT

Speed

1/min: 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 510

Del.quantity cm3/: 342.0...348.0 1000 s: (339.0...351.0)

cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/: 181.0...185.0 1000 s: (179.0...187.0)

BREAKAWAY

Spread

1st version

1mm rack travel less than

full load rack tr: 11.40

rpm : 915...925 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 170.0...210.0 1000 s: (160.0...220.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 340

Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 31.0...37.0

1000 s: (29.0...39.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MACK # 313GC5212-P2

Note remarks

Test sheet : MAC Edition : 4.6.94

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 970

Injection pump

Pump designation : PES6P120A720RS7321 : 0 412 726 906

EP type number Governor

: RQV325...875PA944 Governor design.

-17K

: 0 421 815 392 Governer no.

Customer—spec. information Customer : MACK

Engine : EM7-275

1st version kW £ 202.0 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 084

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 103 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.7

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Phasing 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Rack travel in mm : 11.00...13.00 Firing order : 1-5-3-6-2-

Time to cyl. no. : 1

BASIC SETTING

Prestroke mm

Firing order

1st speed rpm: 875

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 29.2...29.4

100 s: (28.9...29.7)

: 3.25...3.35

: (3.20...3.40)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 340.02nd speed Rack travel in mm: 4.8...5.0

Del.quantity cm3/: 3.7...4.3 100 s: (3.5...4.5)

Spread cm3 : 0.8 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.40...1.60 2nd speed : 450 rpm

travel mm : 3.30...3.70

3rd speed : 700 rpm

: 7.90...8.30 travel mm

4th speed : 900 rpm travel mm

9.40...9.60 5th speed : 1050

rpm travel mm : 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 1200 Del.quantity : 292.3...277.5)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 112...124

Testing:

1st rack travel in: 12.40 rpm : 915...925 Speed

2nd rack travel in: 4.00

Speed rpm : 1055...1085

4th rack travel in: 1200

Speed nom : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 59...71

Testina:

Speed rpm : 275 Minimum rack trave: 6.00 rpm : 340

Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

rpm : 330...520 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 875

Rack travel in m: 13.40...13.50

2nd speed rpm : 510

Rack travel in m: 14.10...14.30

3rd speed rpm : 600

Rack travel in m: 14.20...14.40

4th speed rpm : 450

Rack travel in m: 13.20...13.60

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 510 Pressure hPa : 1200 Rack travel mm : 14.10...14.30

Measurement

1/min: 510 Speed

1st pressure hPa : -

Rack travel in m: 8.70...9.10

2nd pressure hPa : 310

Rack travel in m: 10.10...10.20

3rd pressure hPa : 635

Rack travel in m: 12.50...12.90

START CUT-OUT

1/min: 250 (255) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

: 510 Speed rpm

Deliquentity cm3/: 381.0...387.0 1000 s: (378.0...390.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 183.0...187.0

1000 s: (181.0...189.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

rpm : 915...925 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 170.0...210.0 1000 s: (160.0...220.0) Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 340

Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 37.0...43.0

1000 s: (35.0...45.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5212-P4

Note remarks

Test sheet : MAC Edition : 4.6.94

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 971

Injection pump

Pump designation : PES6P120A720R37321

EP type number : 0 412 726 906

Governor

: RQV325...975PA944 Governor design.

-19K

Governer no. : D 421 815 393

Customer-spec. information Customer : MACK

: E7-300A Engine

: 224.0 1st version kW : 1950 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 084

Inlet press., bar: 2.80

Test nozzle holder

assembly : 1 688 901 103

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 8.00x2,50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.25...3.35 : (3.20...3.40) Prestroke mm

Rack travel in mm : 11.00...13.00

Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 975

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 27.4...27.6

100 s: (27.1...27.9)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 340.02nd speed Rack travel in mm: 4.7...5.1

Del.quantity cm3/: 2.8...3.4 100 s: (2.6...3.6)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

1.40...1.60 travel mm

: 450 2nd speed rpm

: 2.70...3.30 travel mm

3rd speed : 950 rpm

: 7.90...8.10 travel mm

4th speed : 1200 rom

travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 975 Aneroid pressure h: 1200

Del.quantity : 274.5...276.5

1000 : (271.5...279.5)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 110...122

Testina:

1st rack travel in: 12.00

rpm : 1015...1025 Speed

2nd rack travel in: 4.00

rpm : 1170...1200 Speed

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 56...68

Testina:

Speed : 275 rom

Minimum rack trave: 6.00

: 340 Speed rom Rack travel in mm : 4.70...5.10

CONSTANT REGULATION

Speed rom : 350...500

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 975

Rack travel in m: 13.00...13.10

2nd speed rpm : 600

Rack travel in m: 12.20...12.40

3rd speed rpm : 500

Rack travel in m: 11.20...11.60

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 975 rpm

hPa : 1200 Pressure

Rack travel mm : 13.00...13.10

Measurement

1/min: 975 Speed

1st pressure hPa : -

Rack travel in m: 8.50...8.90 2nd pressure hPa : 325 Rack travel in m: 9.40...9.50

3rd pressure hPa : 640

Rack travel in m: 11.70...12.10

START CUT-OUT

1/min: 250 (255) Speed

H15

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 600 Del.quantity cm3/: 285.5...291.5

1000 s: (282.5...294.5)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/ : 169.0...173.0 1000 s: (167.0...175.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 170.0...210.0

1000 s: (160.0...220.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

: 340 Speed rpm

Rack travel in mm : 4.70...5.10 Del.quantity cm3/: 28.5...34.5 1000 s: (26.5...36.5)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MACK # 313GC5212-P8

Note remarks

Test sheet Edition

: MAC : 4.6.94

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 746 972

Injection pump

Pump designation : PESOP120A720RS7321

EP type number

: 0 412 726 906

Governor

Governor design.

: RQV325...875PA944

-20K

Governer no.

: 0 421 815 394

Customer-spec, information Customer

: MACK

Engine

: EM7-300

1st version kW

: 224.0

Rated speed

: 1750

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 2 417 413 084

Inlet press., bar: 2.80

Test nozzle holder

assembly

: 1 688 901 103

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0.7

Test Lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 3.25...3.35

: (3.20...3.40)

Rack travel in mm : 11.00...13.00

Firing order

: 1-5- 3- 6- 2-

Phasing

0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 875

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 30.6...30.8

100 s: (30.3...31.1)

Spread

Spread

cm3 : 0.5

100 s: (0.9)

rpm : 340.0

2nd speed Rack travel in mm: 4.7...4.9

Del.quantity cm3/: 3.7...4.3 100 s: (3.5...4.5)

cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

1.40...1.60 travel mm

2nd speed rpm

: 450 3.30...3.70 travel mm

3rd speed rpm

: 700 travel mm : 7.90...8.30

4th speed rpm

: 900

travel mm

: 9.40...9.60 : 1050

5th speed travel mm

rpm : 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 875

Aneroid pressure h: 1200

Del.quantity : 300.3...311.5)

cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 112...124 Testina: 1st rack travel in: 13.00 rpm : 915...925 Speed 2nd rack travel in: 4.00 rpm : 1055...1085 Speed 4th rack travel in: 1200 rpm : 0.00...1.00 Speed LCW IDLF 1 Control lever position degrees: 59...71 Testina: rpm : 275 Speed Minimum rack trave: 6.00 Speed rom Rack travel in mm : 4.70...4.90 CONSTANT REGULATION Speed rpm : 330...520 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 14.00...14.10 nd speed rpm : 510 Rack travel in m: 14.60...14.80 2nd speed rpm 3rd speed rpm : 575 Rack travel in m: 14.60...14.80 4th speed rpm : 450 Rack travel in m: 13.90...14.30 Aneroid/Altitude Compensator Test 1st version Setting Speed : 510 rpm Pressure hPa : 1200 : 14.60...14.80 Rack travel mm

Measurement 1/min: 510 Speed

1st pressure hPa : -Rack travel in m: 8.80...9.20 2nd pressure hPa : 370 Rack travel in m: 10.30...10.40

3rd pressure hPa : 760

Rack travel in m: 13.30...13.70

START CUT-OUT

1/min : 250 (255) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 rpm : 510

Del.quantity cm3/: 396.0...401.0 1000 s: (392.0...404.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -Speed ripm : 400

Del.quantity cm3/: 185.5...189.5

1000 s: (183.5...191.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.00 rpm : 915...925 Speed

STARTING FUEL DELIVERY

Speed rph:: 100 Del.quantity cm3/: 170.0...210.0 1000 s: (160.0...220.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340 Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 37.0...43.0 1000 s: (35.0...45.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MACK #

313GC5212-P10

Note remarks

Test sheet

: MAC Edition : 6.6.94

Keplaces

Test bil

: ISO-4113

Carbination no.

: 0 402 746 973

Injection pump

Pump designation : PES6P120A720RS7321

EP type number

: 0 412 726 906

Governor

Governor design.

: RQV325...900PA944

-21K

Governer na.

: 0 421 815 395

Customer-spec. information Customer

: MACK

Engine

: E7-350

1st version kW

: 261.0

Rated speed

: 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 2 417 413 084

Inlet press., bar: 2.80

Test nozzle holder

assembly

: 1 688 901 103

Openina

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,7

Test Lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 8.00X2.50X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.75...2.85

: (2.70...2.90)

Firing order

Rack travel in mm : 11.00...13.00 : 1-5- 3- 6- 2-

Phasing

0-60-120-180-240-300

Tolerance + -- ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 900

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 33.5...33.7

100 s: (33.2...34.0)

Spread

cm3 : 0.5

100 s: (0.9)

2nd speed

rpm : 340.0

Rack travel in mm: 4.6...5.0

Del.quantity cm3/: 2.8...3.4

100 s: (2.6...3.6)

Spread

cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.40...1.60

2nd speed rpm : 450

travel mm : 2.80...3.20

3rd speed rpm : 700

travel mm

: 6.00...6.40 4th speed : 900 rpm

travel mm

8.50...8.70 5th speed 1050 rom

: 9.80...10.20

travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 900

Aneroid pressure h: 1200

Del.quantity : 337.3...340.5)

: 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version Control Lever

Testina:

1st rack travel in: 13.50 Speed rpm : 940...950 2nd rack travel in: 4.00

Speed rpm: 1105...1135 4th rack travel in: 1200

npm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 58...70

Testing:

Speed rpm : 275 Minimum rack trave: 6.00 : 340 Speed rpm

Rack travel in mm : 4.60...5.00

CONSTANT REGULATION

nom : 350...500 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 900 Rack travel in m: 14.50...14.60

: 625 2nd speed rpm

Rack travel in m: 13.80...14.00

: 675 3rd speed rpm

Rack travel in m: 13.70...14.10

rpm : 500 4th speed

Rack travel in m: 11.90...12.70

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 900 rpm Pressure hPa : 1200

Rack travel mm : 14.50...14.60

Measurement

1/min: 900 Speed

1st pressure hPa : -

Rack travel in m: 8.40...8.80

2nd pressure hPa : 400

Rack travel in m: 9.80...9.90

3rd pressure hPa : 775

position degrees: 110...122

Rack travel in m: 12.60...13.00

START CUT-OUT

1/min : 250 (255) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 : 625 rpm

Del.quantity cm3/: 351.0...357.0

1000 s: (348.0...360.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 169.0...173.0

1000 s: (167.0...173.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.50

rpm : 940...950 Speed

STARTING FUEL DELIVERY

Speed rpm : 190

Del.quantity cm3/: 170.0...210.0

1000 s: (160.0...220.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 340

Rack travel in mm : 4.60...5.00 Del.quantity cm3/: 28.5...34.5 1000 s: (26.5...36.5)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MACK #

313GC5212-P12

Note remarks

Test sheet : NAV Edition : 6.6.94

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 983

Injection pump

Pump designation : PES6P12UA32URS7328

EP type number : 0 412 726 908

Governor

Governor design. RQV350...1250PA1137K

: 0 421 815 405 Governer no.

Customer-spec, information : NAVISTAR Customer

Engine : DTA-408

1st version kW : 157.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 976

Inlet press., bar: 2.80

Test nozzle holder

assembly : 1 688 901 101

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.85...2.95

: (2.80...3.00) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 16.0...16 2

100 s: (15.7...16.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm3 : 0.5100 s: (0.9)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350 travel mm

: 1.90...2.10 2nd speed rpm : 500

: 4.10...4.50 travel mm

3rd speed rpm : 850

travel mm : 7.00...7.40

4th speed : 1250 rpm

travel mm : 9.50...9.70

5th speed : 1450 rpm : 11.00...11.40 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1500

Del.quantity : 100.5...165.5)

Spread cm3: 5.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 116...128 Testing: 1st rack travel in: 11.70 Speed rpm : 1295...1325 2nd rack travel in: 4.00 Speed rpm : 1450...1460 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position digrees: 74...86 Testing: Speed rpm : 275 Minimum rack trave: 7.50 ; 350 Speed **LDW** Rack travel in mm : 5.70...5.90 CONSTANT REGULATION rpm : 350...500 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 12.70...12.80 2nd speed rpm : 850 Rack travel in m: 12.00...12.20 3rd speed rpm : 650 Rack travel in m: 11.30...11.70 Aneroid/Altitude Compensator Test 1st version Setting rpm : 1250 hPa : 1500 Speed rpm Pressure Rack travel mm : 12.70...12.80 Measurement 1/min: 1250 Speed 1st pressure hPa : -Rack travel in m: 10.00...10.40 2nd pressure hPa : 290

Rack travel in m: 10.80...10.90 3rd pressure hPa : 710 Rack travel in m: 11.80...12.20

1/min: 280 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 Speed rpm : 850 Del.quantity cm3/: 152.0...158.0 1000 s: (149.0...161.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 1250
Del.quantity cm3/ : 102.0...106.0
1000 s: (100.0...108.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.70 rpm : 1295...1325 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 110.0...150.0 1000 s: (100.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 12.5...18.5 1000 s: (10.5...20.5) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : NAVISTAR #1823107c91

START CUT-OUT

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : PER : 07,06,94 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 236 005 Injection pump Pump designation PES6MW100/320/3RS151 EP type number : 0 413 206 018 Governor Governor design. RQV325...1300Mw133-1 : 0 420 083 984 Governer no. Customer-spec. information : PFR Customer : 180 TI Engine : 134.0 1st version kl/ Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Opening. pressure, bar : 207...210 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Prestroke mm : 4.95...5.05 Rack travel in mm : 12.0...14.00 Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Toterance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING 1st speed rpm : 1300Rack travel in mm : 14.6...14.7 Del.quantity cm3/: 14.0...14.2 100 s: (13.7...14.5) Spread cm3 : 0.3100 s: (0.6) rpm : 325.0 2nd speed Rack travel in mm: 5.7...5.9 Del.quantity cm3/ : 2.1...2.5 100 s: (1.85...2.75) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL ist speed rjom : 325 : 1.45...1.95 travel mm 2nd speed rpm : 361 : 2.09...2.59 travel mm 3rd speed : 500 rpm : 3.67...4.17 travel mm 4th speed : 881 rpm : 6.21...6.71 travel mm : 1355 5th speed rpm : 9.98...10.48 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1380 Rack travel in mm : 15.2...17.8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1300Aneroid pressure h: 900

Test pressure, bar: 30...32

Del. Quantity : 140.0...142.0 2nd pressure hPa : 250 1000 : (137.0...145.0) Rack travel in m: 10.25...10.35 Spread cm3 : 4.00 3rd pressure hPa : 400 1000 : (7.50)Rack travel in m: 13.05...13.35 RATED SPEED START CUT-OUT 1st version Speed 1/min: 240 (270) Control lever position degrees: 116...124 FUEL DELIVERY CHARACTERISTICS Testing: 1st rack travel in: 13.6 1st version rpm : 1340...1350 Speed Aneroid pressure h: 900 2nd rack travel in: 4.00 Speed : 800 rpm Del.quantity cm3/: 138.0...142.0 1000 s: (135.0...145.0) rpm : 1460...1490 Speed 4th rack travel in: 1600 rom : 0.0...1.0Speed Spread cm3 : 6.001000 s: (9.0) LOW IDLE 1 Aneroid pressure h: 900 Control Lever Speed : 500 rpm Del.quantity cm3/: 116.0...120.0 1000 s: (113.0...123.0) position degrees: 68...76 Setting point w/out bumper spring Speed : 325 man Aneroid pressure h: -Rack travel in mm: 5.8 rpm : 500 Speed Del.quantity cm3/: 68.0...70.0 1000 s: (66.0...72.0) Testing: Speed : 200 rpm Minimum rack trave: 8.0 Speed rpm : 325
Rack travel in mm : 5.7...5.9 **BREAKAWAY** 1st version TORQUE CUNTROL 1mm rack travel less than Torque control curve - 1st version 1st speed rpm : 1300 full load rack tr: 13.6 Rack travel in m: 14.6...14.7 rpm : 1340...1350 Speed 2nd speed rjom : 800 Rack travel in m: 13.25...13.45 d speed rpm : 500 Rack travel in m: 11.35...11.55 STARTING FUEL DELIVERY 3rd speed : 1000 Ath speed mom Speed rpm : 100 Del.quantity cm3/: 78.0...92.0 1000 s: (75.0...95.0) Rack travel in m: 14.1...14.4 rpm : 700 5th speed Rack travel in m: 12.55...12.85 LOW IDLE Aneroid/Altitude Speed rpm : 325
Rack travel in mm : 5.7...5.9
Del.quantity cm3/ : 21.0...25.0 Compensator Test 1st version 1000 s: (18.5...27.5) Setting cm3 : 3.50 Spread Speed : 1300 1000 s: (5.00) rpm Pressure hPa : 900 : 14.3...14.4 Rack travel mm Remarks: Measurement Speed 1/min: 1300 Start-of-delivery blocking 46.5° before start of delivery of cylinder 1 1st pressure hPa : -Rack travel in m: 9.1...9.3

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB Edition : 04.05.94 Replaces Test oil : ISO-4113 Combination no. : 0 403 244 033 Injection pump Pump designation PES4MW1007720RS1519-: 0 413 204 017 EP type number Governor Governor design. : RQV300...1300MW132-1 Governer no. : 0 420 083 292 Cust. part no. : 0240748202 Customer—spec. information Customer : MB Engine : 0M364LA : 103.0 1st version kW : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 688 901 101 assembly **Opening** pressure, bar : 207...210 Test lines : 1 680 750 089 Outside diameter x Wall thickness : 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 4.50...4.60 Prestroke mm (4.45...4.65) Rack travel in mm : 21.00 Firing order : 1-3-4-2 Phasing : 0-90-180-270 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1300 Rack travel in mm : 13.85...13.95 Del.quantity cm3/: 12.5...12.7 100 s: (12.2...13.0) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0Rack travel in mm: 3.8...4.0 Del.quantity cm3/: 1.0...1.4 100 s: (0.75...1.65) cm3 : 0.3Spread 100 3: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 travel mm : 0.66...1.16 2nd speed : 629 rpm : 2.9...3.4 travel mm 3rd speed : 820 rpm : 3.84...4.34 travel mm 4th speed : 1150 rpm : 5.7...6.2 travel mm : 1354 5th speed rpm : 7.52...8.02 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1300 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1300 Aneroid pressure h: 1400

Test pressure, bar: 30...32

Del.quantity : 125.0...127.0 1000 : (122.0...130.0) Spread cm3 : 3.50 1000 : (6.00)RATED SPEED 1st version Control lever position degrees: 112...120 Testing: 1st rack travel in: 12.9 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1440...1480 Speed 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 67...75 Testing: Speed mom : 200 Minimum rack trave: 4.50 : 300 Speed CIDITI Rack travel in mm: 3.8...4.0 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rom hPa : 1400 Pressure Rack travel mm : 13.85...13.95 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 11.0...11.2 2nd pressure hPa : 350 Rack travel in m: 11.5...11.7 3rd pressure hPa : 600 Rack travel in m: 13.0...13.2 START CUT-OUT Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

: 750

Aneroid pressure h: 1400

rpm

Del.quantity cm3/: 122.0...126.0 1000 s: (119.0...129.0) Spread cm3 : 6.001000 s: (9.0) Aneroid pressure h: 1400 Speed rpm : 600 Del.quantity cm3/ : 124.0...128.0 1000 s: (121.0...131.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 66.0...68.0 1000 s: (64.0...70.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.90 Speed rpm : 1340...1350 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...145.0 Speed 1000 s: (137.J...148.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 3.8...4.0 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks:

Speed

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks : 5.20...5.30 Prestroke mm : (5.15...5.35) Test sheet Rack travel in mm : 21.00...0.00 Firing order : 1-5-3-6-2-Edition : 07.06.94 Replaces Test oil : ISO-4113 Combination no. : 0 403 246 031 Phasing Injection pump 0-60-120-180-240-300 Pump designation PES6MW100/720RS1515-Tolerance $+ - ^{\circ} : 0.50 (0.75)$ EP type number : 0 413 206 021 BASIC SETTING Governor Governor design. : RQV300...1300MW125-4 1st speed rpm : 1300 Governer no. : 0 420 083 284 Rack travel in mm : 11.20...11.30 Cust. part no. : 0220745902 Del.quantity cm3/: 9.9...10.1 Customer-spec. information 100 s: (9.7...10.3) Customer : MB-NFZ Spread cm3 : 0.4Engine : 0M366LA 100 s: (0.6) 1st version kW : 127.0 2nd speed rpm : 300.0 Rack travel in mm : 3.45...3.75 Rated speed : 2600 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) Test oil Spread cm3 : 0.3inlet temp, °C : 38...42 100 s: (0.5) Overflow valve (B) Setting of injection pump : 1 419 992 198 with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL 1st speed rpm : 300 Test nozzle holder : 1.15...1.65 travel mm assembly : 0 688 901 101 2nd speed rpm : 363 : 1.8...2.3 travel mm Opening . 3rd speed rpm : 500pressure, bar : 207...210 : 2.74...3.24 travel mm rpm : 1354 4th speed : 8.43...8.93 travel mm Test lines : 1 680 750 089 FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version x Length mm : 8.00x2.50x600 Speed rpm : 1300 Aneroid pressure h: 1000 : 99.0...101.0 (A) Injection pump setting values Del.quantity 1000 : (97.0...103.0) cm3 : 3.50 Insp. values in parentheses Set equal delivery quant. Spread per values ____ 1000 : (6.00) BEGINNING OF DELIVERY RATED SPEED

H26

1st version Control Lever position degrees: 117...125 Testina: 1st rack travel in: 10.2 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1440...1470 4th rack travel in: 1550 npm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 62...70 Serting point w/out bumper spring : 300 Speed rom Rack travel in mm: 3.6 Testing: Speed mpm : 200 Minimum rack trave: 4.50 Speed rpm : 300 Rack travel in mm : 3.45...3.75 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 11.2...11.3 2nd speed rpm : 750 Rack travel in m: 11.15...11.35 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 1000 Pressure : 11.2...11.3 Rack travel mm Measurement 1/min: 500 Speed ist pressure hPa : -Rack travel in m: 8.0...8.2 2nd pressure hPa : 300 Rack travel in m: 8.7...8.9 3rd pressure hPa : 500 Rack travel in m: 10.1...10.3 START CUT-OUT 1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 rpm : 750 Speed Del.quantity cm3/: 90.5...93.5 1000 s: (88.0...96.0) Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 43.0...45.0 1000 s: (41.0...47.0) **BREAKAWAY** 1st version 1mm rack trave' less than full load rook tr: 10.2 rpm : 1340...1350 Speed STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 125.0...145.0

1000 s: (122.0...148.0)

LOW IDLE

rpm : 300 Speed Rack travel in mm : 3.45...3.75 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks : 5.20...5.30 Prestroke mm : (5.15...5.35) Test sheet Rack travel in mm : 21.00...0.00 : MB Edition : 09.06.94 Firing order : 1-5- 3- 6-Replaces Test oil : ISO-4113 Combination no. : 0 403 246 032 Phasing Injection pump 0-60-120-180-240-300 Pumo designation PES6MW100/720RS1515-Tolerance $+ - ^{\circ}$: 0.50 (0.75) EP type number : 0 413 206 021 BASIC SETTING Governor Governor design. 1st speed rpm : 1300 RQV300...1300MW125-5 Governer no. : 0 420 083 285 Rack travel in mm : 12.30...12.40 Cust. part no. : 0220746002 Del.quantity cm3/: 11.0...11.2 Customer-spec. information 100 s: (10.8...11.4) Customer : MB-NFZ Spread cm3 : 0.4Engine : 0M366LA 100 s: (0.6) 1st version kW : 142.0 2nd speed rpm : 300.0 Rack travel in mm : 3.7...3.9 Del.quantity cm3/ : 1.0...1.4 Rated speed : 2600 TEST BENCH REQUIREMENTS 100 s: (0.7...1.6) Test oil Spread cm3 : 0.3inlet temp. °C : 38...42 100 s: (0.5) Overflow valve (B) Setting of injection pump : 1 419 992 198 with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL 1st speed rpm : 300 Test nozzle holder 1.2...1.6 travel mm assembly : 0 688 901 101 2nd speed rom : 500 travel mm : 2.7...3.3 **Opening** rpm : 880 3rd speed pressure, bar : 207...210 travel mm : 4.9...5.1 rpm : 1350 4th speed travel mm : 8.6...9.0 Test lines : 1 680 750 089 FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version x Length mm : 8.00x2.50x600 Speed rpm : 1300 Aneroid pressure h: 1100 (A) Injection pump setting values Del.quantity : 110.0...112.0 1000 : (108.0...114.0) Insp. values in parentheses Set equal delivery quant. Spread cm3 : 3.50 per values ____ 1000 : (6.00) BEGINNING OF DELIVERY RATED SPEED

H28

1st version Control lever position degrees: 112...120 Testina: ist rack travel in: 11.3 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1450...1480 Speed 4th rack travel in: 1550 Speed rightarrow : 0.00...1.00LOW IDLE 1 Control lever position degrees: 58...66 Setting point w/out bumper spring rpm Rack travel in mm: 3.8 Testina: Speed : 200 rpm Minimum rack trave: 5.00 : 300 Speed rom Rack travel in mm: 3.7...3.9 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 12.3...12.4 nd speed rpm : 750 2nd speed rpm Rack travel in m: 12.25...12.45 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 1100 Pressure : 12.3...12.4 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.35...8.55 2nd pressure hPa : 250 Rack travel in m: 9.1...9.3 3rd pressure hPa : 500 Rack travel in m: 10.8...11.0 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1100 Speed rpm : 750 Del.quantity cm3/ : 105.0...108.0 1000 s: (102.5...110.5) Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 43.0...45.0 1000 s: (41.0...47.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.3 Speed rpm : 1340...1350 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 140.0...150.0 1000 s: (137.0...153.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 3.7...3.9 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5)

Spread cm3 : 3.501000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks Prestroke mm : 4.50...4.60 : (4.45...4.65) Rack travel in mm : 21.00...0.00 Firing order : 1-5-3-6-2-Test sheet Edition : 15.04.94 Replaces Test oil : ISO-4113 Combination no. : 0 403 246 035 Phasina Injection pump 0-60-120-180-240-300 Pump designation PES6MW100/720RS1517-Tolerance $+ - ^{\circ} : 0.50 (0.75)$: 0 413 206 020 EP type number BASIC SETTING Governor Governor design. : RQV300...1300MW132-2 1st speed rpm: 1300 Governer no. : 0 420 083 293 Rack travel in mm : 11.95...12.05 Cust. part no. : 0240744202 Del.quantity cm3/: 10.1...10.3 Customer-spec. information 100 s: (9.9...10.5) Customer : MB-NFZ cm3 : 0.4Spread : 0M366LA Engine 100 s: (0.7) : 125.0 1st version kW Rated speed 2nd speed rpm : 300.0 Rack travel in mm : 3.7...3.9 : 2600 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) Test oil cm3 : 0.3Spread inlet temp. °C 100 s: (0.5) : 38...42 Overflow valve (B) Setting of injection pump : 1 419 992 198 with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL rpm : 300 1st speed Test nozzle holder travel mm : 0.77...1.27 assembly : 0 688 901 101 2nd speed rpm : 490 : 2.0...2.5 rpm : 710 travel mm Opening 3rd speed pressure, bar : 207...210 travel mm : 2.78...3.28 4th speed rpm : 1100 : 4.51...5.01 travel mm Test Lines : 1 680 750 089 5th speed rpm : 1353 travel mm : 6.45...6.95 Outside diameter x Wall thickness FULL LOAD DELIV. AT FULL LOAD STOP : 8.00x2.50x600 x Length mm 1st version (A) Injection pump setting values Speed rpm : 1300 Insp. values in parentheses Aneroid pressure h: 1000 Set equal delivery quant. : 101.0...103.0 Del.quantity 1000 : (99.0...105.0) per values Spread cm3 : 3.50

1000 : (6.00)

BEGINNING OF DELIVERY

RATED SPEED 1st version Control lever position degrees: 112...120 Testing: 1st rack travel in: 11.0 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1455...1485 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 67...75 Setting point w/out bumper spring Speed rpm : 300 Testing: : 200 Speed rpm Minimum rack trave: 4.50 : 300 rpm Speed Rack travel in mm: 3.7...3.9 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 1000 Pressure Rack travel mm

: 11.95...12.05 Measurement

1/min: 500 Speed' 1st pressure hPa : -Rack travel in m: 9.7...9.9 2nd pressure hPa : 150 Rack travel in m: 10.25...10.45 3rd pressure hPa : 300 Rack travel in m: 11.25...11.45

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 rpm : 750 Speed Del.quantity cm3/: 91.5...94.5 1000 s: (89.0...97.0)

Spread cm3 : 5.501000 s: (7.0) Aneroid pressure h: 1000 Speed rpm : 600 Del.quantity cm3/ : 93.5...96.5 1000 s: (91.0...99.0) Arieroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 52.0...54.0 1000 s: (50.0...56.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.0 rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 110.0...120.0 1000 s: (107.0...123.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 3.7...3.9 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

103

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB Edition : 11.05.94 Replaces Test oil : ISO-4113 Combination no. : 0 403 274 005 Injection pump Pump designation : PES6MW100/720RS1519-EP type number : 0 413 204 017 Governor Governor design. RSV350...1200Mw0A356 : 0 420 085 231 Governer no. : 0250740802 Cust. part no. Customer-spec. information : MB-NFZ Customer Engine : 0M364LA 1st version kW : 103.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 688 901 101 assembly **Opening** pressure, bar : 207...210 Test Lines : 1 680 750 089 Outside diameter x Wall thickness x Length mm : 8.00x2.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Test pressure, bar: 30...32 Prestroke mm : 4.50...4.60 : (4.45...4.65) Rack travel in mm : 21.00...0.00 Firing order : 1-5-3-6-2-Phasing C-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING rpm: 1200 1st speed Rack travel in mm : 13.75...13.85 Del.quantity cm3/: 12.4...12.6 100 s: (12.1...12.9) Spread cm3 : 0.4100 s: (0.7) rpm : 350.02nd speed Rack travel in mm: 3.8...4.0 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) Spread cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm: 0.3...0.7 Governor spring pre-tension Click setting x : 4.5FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1200 Aneroid pressure h: 1500 Del.quantity : 127.0...129.0 1000 : (124.0...132.0) cm3 : 4.00 Spread 1000 : (7.50) RATED SPEED 1st version Control lever

position degrees: 92...100

BEGINNING OF DELIVERY

Setting point:

Speed rpm Rack travel in mm: 0.5

Testina:

1st rack travel in: 12.8

rpm : 1240...1250 Speed

4th rack travel in: 1400 Speed rpm : 0.3...1.7

LOW IDLE 1

Control lever

position degrees: 62...70

Setting point w/out bumper spring

: 350 rpm Rack travel in mm: 3.9

Testina:

Speed rpm : 100 Minimum rack trave: 19.0 Speed rpm : 350

Rack travel in mm : 3.8...4.0

SET IDLE AUXILIARY SPRING

Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 13.75...13.85

rpm : 750 2nd speed

Rack travel in m: 13.7...13.9

Aneroid/Altitude

Compensator Test

1st version

Settina

Speed : 500 rpm Pressure hPa : 1500

Rack travel mm : 13.7...13.9

Measurement

Speed $1/\min : 500$

1st pressure hPa : -

Rack travel in m: 10.4...10.6

2nd pressure hPa : 450

Rack travel in m: 11.05...11.25

3rd pressure hPa : 700

Rack travel in m: 12.6...12.8

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 Speed rpm : 750

J05

Del.quantity cm3/: 129.0...133.0 1000 s: (126.0...136.0)

cm3 : 6.00 Spread

1000 s: (9.0)

Aneroid pressure h: -Speed rpm : 500

Del.quantity cm3/: 62.0...64.0

1000 s: (60.0...66.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.8

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...140.0

1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 3.8...4.0
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)

Spread cm3 : 3.501000 s: (5.50)

Remarks:

Test hydr. locking device for starting

with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar

atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB

Edition : 11.05.94

Replaces : -

Test oil : ISO-4113

Combination no. : 0 403 274 006

Injection pump Pump designation : PES6MW100/720RS1519-

3

EP type number : 0 413 204 018

Governor

Governor design. : RSV350...1200MW0A356

Governer no. : 0 420 085 232

Cust. part no. : 0250740702

Customer-spec. information Customer : MB-NFZ

Engine : OM364LA

1st version kW : 77.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 688 901 101

Opening

pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60

: (4.45...4.65)

Rack travel in mm : 21.00...0.00 Firing order : 1-5-3-6-2-

4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 11.95...12.05

Del.quantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 350.0 Rack travel in mm : 3.8...4.0 Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm3: 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800 Rack travel in mm : 0.3...0.7

Governor spring pre-tension Click setting x : 4.5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1200 Aneroid pressure h: 1500

Del.quantity : 101.0...103.0 1000 : (99.0...105.0)

Spread cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 92...100

Setting point:

Speed : 800 mgn Rack travel in mm: 0.5

Testing:

1st rack travel in: 11.0

Speed rpm : 1240...1250

4th rack travel in: 1400 Speed rpm: 0.3...1.7

LOW IDLE 1 Control lever

position degrees: 62...70

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm: 3.9

Testina:

Speed rpm : 100

Minimum rack trave: 19.0

Speed rpm : 350 Rack travel in mm : 3.8...4.0

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 11.95...12.05

2nd speed rpm : 750

Rack travel in m: 11.9...12.1

Aneroid/Altitude Compensator Test

1st version

Settina

rpm : 500 hPa : 1500 Speed rpm Pressure

Rack travel mm : 11.9...12.1

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 10.7...10.9

2nd pressure hPa : 450

Rack travel in m: 11.05...11.25

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 : 750 Speed rpm

J07

Del.quantity cm3/: 93.5...96.5 1000 s: (91.0...99.0)

Spread cm3 : 6.00

1000 s: (9.0)

Aneroid pressure h: -Speed rpm : 500

Del.quantity cm3/: 75.0...77.0 1000 s: (73.0...79.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.0

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 90.0...100.0

1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm: 3.8...4.0

Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

Test hydr. locking device for starting

with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar

atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks Prestroke mm : 4.50...4.60 : (4.45...4.65) Test sheet : MB Rack travel in mm : 21.00...0.00 Edition : 09.05.94 Firing order : 1-5-3-6-2-Replaces Test oil : ISO-4113 Combination no. : 0 403 276 005 Phasing Injection pump 0-60-120-180-240-300 Pump designation : PES6MW1007720RS1517-Tolerance $+ - ^{\circ} : 0.50 (0.75)$: 0 413 206 020 EP type number BASIC SETTING Governor Governor design. 1st speed rpm: 1200 RSV350...1200Mw0A355 : 0 420 085 228 Governer no. Rack travel in mm : 11.0...11.1 : 0250740102 Del.quantity cm3/: 9.4...9.6 Cust, part no. Customer-spec. information 100 s: (9.2...9.8) Customer : MB-NFZ Spread cm3 : 0.4: 0M366LA Engine 100 s: (0.7) 1st version kW : 100.0 2nd speed rpm : 350.0 Rack travel in mm : 2.9...3.1 Rated speed : 2400 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) Test oil cm3 : 0.3Spread inlet temp. °C 100 s: (0.5) : 38...42 Overflow valve GUIDE SLEEVE POSITION : 1 419 992 198 Control-lever position Degree: -3 Inlet press., bar: 1.50 Speed rpm : 800 Rack travel in mm: 0.3...0.7 Test nozzle holder : 0 688 901 101 assembly Governor spring pre-tension Click setting x : 4.5Opening pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 089 Speed rpm : 1200 Aneroid pressure h: 1000 Outside diameter : 94.0...96.0 Del.quantity x Wall thickness 1000 : (92.0...98.0) x Length mm : 8.00X2.50X600 cm3 : 4.00Spread 1000 : (7.50) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values 1st version Control lever BEGINNING OF DELIVERY position degrees: 92...100

J08

Setting point:

Speed : 800 rom Rack travel in mm : 0.5

Testina:

1st rack travel in: 10.0

rpm : 1240...1245 Speed

2nd rack travel in: 4.0

speed rpm : 1300...1307 4th rack travel in: 1400 Speed

LOW IDLE 1 Control lever

position degrees: 62...70 Setting point w/out bumper spring

rom Rack travel in mm: 3.0

Testina:

: 100 Speed rpm Minimum rack trave: 19.0 : 350 Speed rpm Rack travel in mm: 2.9...3.1

SET IDLE AUXILIARY SPRING Speed rpm : 390 Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed

rt speed rpm : 1200 Rack travel in m: 11.0...11.1

: 750 rpm 2nd speed

Rack travel in m: 10.95...11.15

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed mcn hPa : 1000 Pressure

Rack travel mm : 10.95...11.15

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.9...10.1

2nd pressure hPa : 300

Rack travel in m: 10.4...10.6 3rd pressure hPa : 380 Rack travel in m: 10.8...11.0

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

rpm : 750 Speed

Del.quantity cm3/: 87.5...90.5 1000 s: (85.0...93.0)

cm3 : 5.50 1000 s: (7.0) Spread

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 68.0...70.0

1000 s: (66.0...72.0)

BREAKAWAY

1st version

imm rack travel less than

full load rack tr: 10.0

Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 115.0...125.0 1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 2.9...3.1

Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Test hydr. locking device for starting with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar

atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Test pressure, bar: 30...32 Note remarks : 4.50...4.60 Prestroke mm Test sheet : (4.45...4.65) : 07.04.94 Rack travel in mm: 21.00...0.CD Edition Replaces Firing order : 1-5- 3- 6- 2-Test oil : ISO-4113 Combination no. : 0 403 276 006 Injection pump Phasing 0-60-120-180-240-300 Pump designation PES6MW100/720RS1517-Tolerance + - ° : 0.50 (0.75) : 0 413 206 020 EP type number Covernor BASIC SETTING Governor design. RSV350...12009W0A355 1st speed rpm: 1200 Governer no. : 0 420 085 229 Rack travel in mm : 11.4...11.5 Cust. part no. : 0250740202 Del.quantity cm3/: 10.1...10.3 Customer-spec. information 100 s: (9.9...10.5) Customer : MB-NFZ cm3 : 0.4Spread : 0M366LA Engine 100 s: (0.7) 1st version kW : 120.0 2nd speed rpm : 350.0 Rack travel in mm : 3.2...3.4 Del.quantity cm3/ : 1.0...1.4 Rated speed : 2400 TEST BENCH REQUIREMENTS 100 s: (0.7...1.6) Test oil cm3 : 0.3Spread inlet temp. °C : 38...42 100 s: (0.5) Overflow valve GUIDE SLEEVE POSITION : 1 419 992 198 Control-lever position Degree: -3 Inlet press., bar: 1.50 rpm : 800 Speed Rack travel in mm: 0.3...0.7 Test nozzle holder : 0 688 901 101 assembly Governor spring pre-tension Click setting x : 4.5**Opening** FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 207...210 1st version Test lines : 1 680 750 089 Speed rpm : 1200 Aneroid pressure h: 1000 Outside diameter : 101.0...103.0 Del.quantity 1000 : (99.0...105.0) x Wall thickness : 8.00x2.50x600 : 3.50 x Length mm Spread cm3 1000 : (6.00) (A) Injection pump setting values

RATED SPEED

1st version

Insp. values in parentheses Set equal delivery quant.

per values __

Control lever

position degrees: 92...100

Setting point:

Speed rpm man Rack travel in mm: 0.5

Testing:

1st rack travel in: 10.4

rpm : 1240...1245 Speed

4th rack travel in: 1400 Speed rpm: 0.3...1.7

LOW IDLE 1

Control lever

position degrees: 62...70

Setting point w/out bumper spring

rpm : 350

Rack travel in mm: 3.3

Testing:

Speed rpm : 100

Minimum rack trave: 19.0

Speed rpm : 350 Rack travel in mm : 3.2...3.4

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 11.4...11.5 2nd speed rpm : 750 Rack travel in m: 11.35...11.55

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

hPa : 1000 Pressure

Rack travel mm : 11.35...11.55

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.55...9.75

2nd pressure hPa : 350

Rack travel in m: 9.9...10.1

3rd pressure hPa : 530

Rack travel in m: 10.9...11.1

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 750

Del.quantity cm3/: 97.5...101.5 1000 s: (95.0...103.0)

cm3 : 5.50Spread

1900 s: (7.0)

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 62.0...64.0 1000 s: (60.0...66.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.4

Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 90.0...100.0

1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 3.2...3.4
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Test hydr. locking device for starting

with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar

atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Test pressure, bar: 30...32 Note remarks Prestroke mm : 4.50...4.60 : (4.45...4.65) Test sheet : MB Rack travel in mm : 21.00...0.00 Edition : 11.05.94 Replaces Firing order : 1-5-3-6-2-Test oil : ISO-4113 Combination no. : 0 403 276 007 Injection pump Phasing Pump designation 0-60-120-180-240-300 PES6MW100/720RS1517-Tolerance $+ - ^{\circ} : 0.50 (0.75)$ EP type number : 0 413 206 020 Governor BASIC SETTING Governor design. RSV350...1200Mw0A355 1st speed rpm: 1200 : 0 420 085 230 Governer no. Rack travel in mm : 12.95...13.05 : 0250740302 Cust. part no. Del.quantity cm3/: 11.7...11.9 Customer-spec. information 100 s: (11.5...12.1) Customer : MB-NF7 Spread cm3 : 0.4Engine : 0M366LA 100 s: (0.7) 1st version kW : 140.0 Rated speed : 2400 rpm : 350.02nd speed Rack travel in mm: 3.2...3.4 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) cm3 : 0.3Test oil Spread inlet temp. °C : 38...42 100 s: (0.5) Overflow valve GUIDE SLEEVE POSITION : 1 419 992 198 Composition Degree: -3 Inlet press., bar: 1.50 Speed rpm : 800 Rack travel in mm: 0.3...0.7 Test nozzle holder : 0 688 901 101 assembly Governor spring pre-tension Click setting x : 4.5 **Opening** pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 089 Speed rpm : 1200 Aneroid pressure h: 1000 Outside diameter : 117.0...119.0 Del.quantity x Wall thickness 1000 : (115.0...121.0) : 8.00X2.50X600 x Length mm Spread : 3.50 cm3 1000 : (6.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant.

1st version

per values ____

Control lever

position degrees: 92...100

Setting point:

Speed rpm : 800 Rack cravel in mm : 0.5

Testing:

1st rack travel in: 12.0

Speed rpm : 1240...1245 4th rack travel in: 1400

Speed riom : 0.3...1.7

LOW IDLE 1

Control lever

position degrees: 62...70 Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 3.3

Testing:

rpm : 100 Speed Minimum rack trave: 19.0

rpm : 350 Speed

Rack travel in mm: 3.2...3.4

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 12.95...13.05

2nd speed rpm : 750

Rack travel in m: 12.9...13.1

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 500 Speed

hPa : 1000 Pressure

Rack travel mm : 12.9...13.1

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.55...9.75

2nd pressure hPa : 350 Rack travel in m: 9.9...10.1

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

rpm : 750 Speed

Del.quantity cm3/: 113.5...116.5

1000 s: (111.0...119.0)

cm3 : 5.50Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed (*ph) : 50)
Del.quantity cm3/: 62.0...64.0
1000 s: (60.0...66.0)

EREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.0

rpm : 1240...1245 Speed

STARTING FUEL DELIVERY

Speed ripm : 100

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 3.2...3.4 Del.quantity cm3/ : 10.0...14.0 1000 s: (7.5...16.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Test hydr. locking device for starting

with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm

control-rod travel at 4.5 bar

atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB Edition : 11.05.94 Replaces : ISO-4113 Test oil Combination no. : 0 403 276 009 Injection pump Pump designation PES6MW100/720RS1517-: 0 413 206 019 EP type number Governor Governor design. : RSV350...1200MW0A357 Governer no. : 0 420 085 233 Cust, part no. : 0250740402 Customer-spec. information Customer : MB-NF7 : 0M366LA Engine 1st version kW : 155.0 : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 688 901 101 Opening : 207...210 pressure, bar Test lines : 1 680 750 089 Outside diameter x Wall thickness x Length mm : 8.00x2.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Test pressure, bar: 30...32 : 4.50...4.60 Prestroke mm : (4.45...4.65) Rack travel in mm : 21.00...0.00 Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING 1st speed rpm: 1200 Rack travel in mm : 14.0...14.1 Del.quantity cm3/: 12.7...12.9 100 s: (12.4...13.2) cm3 : 0.4Spread 100 s: (0.7) rpm : 350.02nd speed Rack travel in mm: 3.8...4.0 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) Spread cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm: 0.3...0.7 Governor spring pre-tension Click setting x : 4.5FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1200 Aneroid pressure h: 1500 Del.quantity : 127.0...132.0) cm3 : 4.001000 : (7.50) RATED SPEED 1st version Control lever

position degrees: 104...112

per values __

BEGINNING OF DELIVERY

Setting point: Speed rpm : 800 Rack travel in mm: 0.5 Testing: 1st rack travel in: 13.0 rpm : 1240...1245 2nd rack travel in: 4.0 Speed rpm : 1366...1370 4th rack travel in: 1450 Speed rpm : 0.3...1.7 LOW IDLE 1 Control Lever position degrees: 72...80 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 3.9 Testing: Speed rpm : 100 Minimum rack trave: 19.0 Speed rpm : 350 Rack travel in mm: 3.8...4.0 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 14.0...14.1 2nd speed rpm : 750 Rack travel in m: 13.95...14.15 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Pressure hPa : 1500 Rack travel mm : 13.95...14.15 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.45...8.65 2nd pressure hPa : 350 Rack travel in m: 10.4...10.6 3rd pressure hPa : 750 Rack travel in m: 12.9...13.1 FUEL DELIVERY CHARACTERISTICS

full load rack tr: 13.0 Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...150.0 1000 s: (137.0...153.0)

LOW IDLE

Remarks:

Test hydr. locking device for starting with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

1st version

Prestroke mm : 3.70...3.80
Rack *ravel in mm : 9.00...12.00 BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Firing order : 1- 5- 3- 6- 2-Test sheet : 27.04.94 Edition Replaces Test oil : 150-4113 Phasing 0-60-120-180-240-300 : 0 403 446 302 Combination no. Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Injection pump Pump designation : PES6MW10D/720RS1131 BASIC SETTING EP type number : 0 413 406 123 Governor 1st speed rpm: 1300 Governor design: : RQV300...1300MW50-24 Rack travel in mm : 10.9...11.0 : 0 420 083 270 Governer no. Del.quantity cm3/: 8.8...9.0 Cust. part no. : 0220745202 100 s: (8.6...9.2) Customer-spec. information Customer : MB-NFZ Spread cm3 : 0.3Engine : OM 366 A 100 s: (0.6) 1st version kW : 121.0 rpm : 300.02nd speed Rated speed : 2600 Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 1.0...1.4 TEST BENCH REQUIREMENTS 100 s: (0.7...1.6) cm3 : 0.3Spread Test oil 100 s: (0.5) inlet temp. °C : 38...42 (B) Setting of injection pump Overflow valve with governor : 1 419 992 198 GUIDE SLEEVE TRAVEL Inlet press., bar: 1.50 rpm : 1450 1st speed : 9.4...10.0 travel mm Test nozzle holder 2nd speed rpm : 1350 : 8.5...8.7 : 1 688 901 101 assembly travel mm 3rd speed rpm : 500 Opening travel mm : 2.7...3.3 pressure, bar : 207...210 rpm : 300 4th speed travel mm : 1.2...1.6 Test lines : 1 680 750 089 GUIDE SLEEVE POSITION Control-lever position Outside diameter Degree: -1 x Wall thickness rpm : 1350 Speed : 8.00x2.50x600 x Length mm Rack travel in mm : 15.2...17.8 (A) Injection pump setting values FULL LOAD DELIV. AT FULL LOAD STOP Insp. values in parentheses Set equal delivery quant. 1st version per values _ Speed rpm : 1300Aneroid pressure h: 700 Del.quantity : 88.0...92.0) BEGINNING OF DELIVERY Test pressure, bar: 30...32

Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control Lever position degrees: 108...116 Testina: 1st rack travel in: 9.95 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1425...1455 Speed 4th rack travel in: 1500 Speed rpm : 0.0...1.0LOW IDLE 1 Control Lever position degrees: 72...80 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.2 Testing: Speed : 200 rpm Minimum rack trave: 8.0 rpm : 300 Speed Rack travel in mm: 6.1...6.3 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm: 1300
Rack travel in m: 10.9...11.0
2nd speed rpm: 750 Rack travel in m: 11.5...11.6 3rd speed rpm : 1100 Rack travel in m: 11.1...11.3 Aneroid/Altitude Compensator Test 1st version Setting rom : 500 hPa : 700 Speed rpm Pressure Rack travel mm : 11.5...11.6 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.8...9.9
2nd pressure hPa : 200
Rack travel in m: 10.2...10.3
3rd pressure hPa : 300 Rack travel in m: 11.0...11.3

1st version Aneroid pressure h: 700 Speed rpm : 750 Del.quantity cm3/: 84.5...87.5 1000 s: (82.0...90.0) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 48.0 .50.0 1000 s: (46.0...52.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.95 Speed rpm : 1340...1350 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 100.0...110.0 1000 s: (97.0...113.0) LOW IDLE rpm : 300 Speed Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3 : 3.501000 s: (5.00) Remarks:

FUEL DELIVERY CHARACTERISTICS

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

Edition

: 27.04.94

Replaces

Test oil

: ISO-4113

Combination no.

: 0 403 446 302

Injection pump

Pump designation : PESSYW100/720RS1131

EP type number

: 0 413 406 123

Governor

Governor design. RQV300...1300Mw50-24

Governer no.

: 0 420 083 270

Cust. part no.

: 0220745202

Customer-spec. information

Customer

: MB-NFZ

Engine

: OM 366 A

1st version kw

: 121.0

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 101

Openina

pressure, bar

: 207...210

Test lines

: 1 680 750 089

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80 Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-

Phasing

0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed

rpm: 1300

Rack travel in mm : 10.9...11.0

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm: 6.1...6.3

Dal.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

: 9.4...10.0 travel mm

rpm : 1350 2nd speed

travel mm : 8.5...8.7

: 500 3rd speed rpm

: 2.7...3.3 travel mm

: 300 4th speed rpm

: 1.2...1.6 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1350 Speed

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1300

Aneroid pressure h: 700

Del.quantity

: 88.0...90.0

1000 : (86.0...92.0)

: 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control Lever position degrees: 108...116 Testing: 1st rack travel in: 9.95 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1425...1455 Speed 4th rack travel in: 1500 rpm : 0.0...1.0Speed LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring Speed rom : 300 Rack travel in mm: 6.2 Testina: Speed : 200 rpm Minimum rack trave: 8.0 rpm : 300 Speed Rack travel in mm: 6.1...6.3 TORQUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 10.9...11.0 2nd speed rpm : 750 Rack travel in m: 11.5...11.6 3rd speed rpm : 1100 Rack travel in m: 11.1...11.3 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 700 Pressure Rack travel mm : 11.5...11.6 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 9.8...9.9 2nd pressure hPa : 200 Rack travel in m: 10.2...10.3 3rd pressure hPa : 300 Rack travel in m: 11.0...11.3

1st version Ameroid pressure h: 700 Speed : 750 rpm Del.quantity cm3/: 84.5...87.5 1000 s: (82.0...90.0) cm3 : 5.00 1000 s: (7.0) Spread Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 48.0...50.0 1000 s: (46.0...52.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.95 Speed riom : 1340...1350 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 6.1...6.3 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3: 3.50 1000 s: (5.00) Remarks:

FUEL DELIVERY CHARACTERISTICS

BOSCH INU. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

: 27.04.94 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 303

Injection pump

Pump designation : PES6MW100/720RS1131

EP type number : 0 413 406 123

Governor

Governor design. :RQV300...1300MW50-24

: 0 420 083 270 Governer no.

Cust. part no.

Customer-spec. information Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 121.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Test Lines : 1 680 750 089

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
Rack travel in mm : 9.00...12.00 : 1-5- 3- 6- 2-Firing order

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 10.9...11.0

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450 : 9.4...10.0 travel mn

rpm : 1350 2nd speed : 8.5...8.7 travel mm

rpm : 500 : 2.7...3.3 3rd speed

travel mm 4th speed rpm : 300

: 1.2...1.6 travel mm

GUIDE SLEEVE POSITION Control-lever position Degree: -1

rpm : 1350 Speed

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 700

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

: 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control Lever position degrees: 108...116 Testing: 1st rack travel in: 9.95 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1425...1455 Speed 4th rack travel in: 1500 rom : 0.0...1.0Speed LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring Speed rom : 300 Rack travel in mm: 6.2 Testing: Speed : 200 rom Minimum rack trave: 8.0 : 300 Speed rpm Rack travel in mm: 6.1...6.3 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 10.9...11.0 2nd speed rpm : 750 Rack travel in m: 11.5...11.6 rpm : 1100 3rd speed Rack travel in m: 11.1...11.3 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 700 Speed rpm Pressure Rack travel mm : 11.5...11.6 Measurement Speed 1/min : 500 1st pressure hPa : -Rack travel in m: 9.8...9.9 2nd pressure hPa : 200 Rack travel in m: 10.2...10.3
3rd pressure hPa : 300
Rack travel in m: 11.0...11.3

1st version Aneroid pressure h: 700 Speed rpm : 750 Del.quantity cm3/: 84.5...87.5 1000 s: (82.0...90.0) : 5.00 Spread cm3 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 48.0...50.0 1000 s: (46.0...52.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.95 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0) LOW IDLE : 300 Speed rpm Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50Spread 1000 s: (5.00) Remarks:

FUEL DELIVERY CHARACTERISTICS

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks : 3.70...3.80 Prestroke mm Rack travel in mm : 9.00...12.00 Test sheet : MB Firing order : 1-5-3-6-2-Edition : 27.04.94 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 303 Phasing 0-60-120-180-240-300 Injection pump Pumo designation Tolerance $+ - ^{\circ} : 0.50 (0.75)$ PES6MW100/720RS1131-BASIC SETTING EP type number : 0 413 406 165 Governor rpm: 1300 1st speed Governor design. RQV300...1300MW50-25 Rack travel in mm : 12.9...13.0 Governer no. : 0 420 083 271 Del.quantity cm3/: 9.5...9.7 Cust, part no. : 0220745302 100 s: (9.3...9.9) Customer-spec, information Customer : MB-NFZ Spread cm3 : 0.3Engine : 0M 366 LA 100 s: (0.6) 1st version kW : 155.0 rpm : 300.02nd speed Rated speed : 2600 Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) TEST BENCH REQUIREMENTS cm3 : 0.3 Spread Test oil 100 s: (0.5) inlet temp. °C : 38...42 (B) Setting of injection pump Overflow valve with governor : 1 419 992 198 GUIDE SLEEVE TRAVEL Inlet press., bar: 1.50 rpm : 1450 1st speed travel mm 9.4...10.0 Test nozzle holder : 1350 2nd speed rom : 1 688 901 101 assembly : 8.5...8.7 travel mm : 500 3rd speed rpm Opening travel mm : 2.7...3.3 pressure, bar : 207...210 : 300 4th speed man travel mm : 1.2...1.6 Test lines : 1 680 750 089 GUIDE SLEEVE POSITION Control-lever position Outside diameter Degree: -1 x Wall thickness rpm : 1350 : 8.00x2,50x600 Rack travel in mm : 15.2...17.8 x Length mm (A) Injection pump setting values FULL LOAD DELIV. AT FULL LOAD STOP Insp. values in parentheses Set equal delivery quant. 1st version per values ____ rpm : 1300 Speed

Aneroid pressure h: 1000

BEGINNING OF DELIVERY

Del.quantity : 95.0...97.0 1000 : (93.0...99.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 112...120 Testing: 1st rack travel in: 11.95 Speed npm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1455...1485 4th rack travel in: 1550 Speed ricm : 0.0...1.0LOW IDLE 1 Control lever position degrees: 74...82 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 6.5 Testing: Speed : 200 CIOM Minimum rack trave: 8.0 Speed : 300 rpm Rack travel in mm: 6.4...6.6 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 12.9...13.0 and speed rpm : 750 2nd speed Rack travel in m: 12.85...13.05 rpm : 500 3rd speed Rack travel in m: 10.5...10.6 Aneroid/Altitude Compensator Test 1st version Setting Speed man : 500 Pressure hPa : 1000 Rack travel mm : 12.9...13.0 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.5...10.6 2nd pressure hPa : 200 Rack travel in m: 11.2...11.3 3rd pressure hPa : 350 Rack travel in m: 12.4...12.7

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 Speed : 750 rpm

Del.quantity cm3/: 84.0...88.0 1000 s: (82.0...90.0)

cm3 : 5.00 Spread 1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 41.0...43.0

1000 s: (39.0...45.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.95

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

: 100 rpm

Del.quantity cm3/: 100.0...110.0 1000 s: (97.0...113.0)

LOW IDLE

Speed rpm

Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 10.0...14.0

1000 s: (7.5...16.5) Spread cm3 : 3.50

1000 s: (5.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm: 13.5 Firing order : 1-5-3-6-2-Note remarks Test sheet : DAF : 28.04.94 Edition Replaces Phasing 0-60-120-180-240-300 Test oil : ISO-4113 Combination no. : 0 403 446 309 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Injection pump BASIC SETTING Pump designation : PES6MW100/720RS1227 EP type number : 0 413 406 215 1st speed rpm : 1000Governor Governor design. : RQV325...1300MW126 Rack travel in mm : 13.0...13.1 Governer no. : 0 420 083 279 Del.quantity cm3/: 11.0...11.2 : 1249951 Cust. part no. 100 s: (10.8...11.4) Customer-spec. information Customer : DAF Spread cm3 : 0.3Engine : NS156L 100 s: (0.6) : 156.0 1st version kW rpm : 325.0 2nd speed Rack travel in mm : 4.4...4.6 Rated speed : 2600 Del.quantity cm3/ : 0.7...1.1 TEST BENCH REQUIREMENTS 100 s: (0.45...1.35) Spread cm3 : 0.3Test oil 100 s: (0.5) inlet temp. °C : 38...42 (B) Setting of injection pump Overflow valve with governor : 1 419 992 198 GUIDE SLEEVE TRAVEL Inlet press., bar: 1.50 rpm : 1350 1st speed : 8.4...8.8 travel mm Test nozzle holder : 875 2nd speed rpm : 1 688 901 101 assembly : 4.9...5.1 travel mm : 500 3rd speed rpm **Opening** travel mm : 2.7...3.3 : 207...210 pressure, bar 4th speed : 325 rpm : 1.5...1.9 travel mm Test lines : 1 680 750 008 GUIDE SLEEVE POSITION Speed rpm : 1350 Outside diameter Rack travel in mm : 15.2...17.8 x Wall thickness : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values 1st version Insp. values in parentheses Speed rpm : 1000 Set equal delivery quant. Aneroid pressure h: 1000 : 110.0...112.0 per values Del.quantity 1000 : (109.0...114.0) BEGINNING OF DELIVERY : 3.50 Spread cm3 Test pressure, bar: 30...32 1000 : (6.00) : 3.00...3.10 Prestroke mm RATED SPEED

J24

1st version Control Lever position degrees: 119...127 Testira: 1st rack travel in: 12.05 rpm : 1324...1340 Speed 2nd rack travel in: 4.00 rpm : 1455...1485 Speed 4th rack travel in: 1550 rom : 0.0...1.G Speed LOW IDLE 1 Control lever position degrees: 78...86 Setting point wout bumber spring Speed MOM : 325 Rack travel in mm: 4.5 Testing: Speed : 225 mc Minimum rack trave: 6.0 Speed rpm : 325 Rack travel in mm: 4.4...4.6 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 13.0...13.1 2nd speed rpm : 1300 Rack travel in m: 12.95...13.15 3rd speed rpm : 600 Rack travel in m: 10.0...10.2 Aneroid/Altitude Compensator Test 1st version Setting Speed rom : 600 hPa : 1000 Rack travel mm : 13.0...13.1 Measurement Speed 1/min: 600 1st pressure hPa : 390 Rack travel in m: 12.2...12.3 2nd pressure hPa : 190 Rack travel in m: 10.9...11.1 3rd pressure hPa : -Rack travel in m: 10.0...10.2 FUEL DELIVERY CHARACTERISTICS 1st version

rpm : 1300 Speed Del.quantity cm3/: 105.5...108.5 1000 s: (103.0...110.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: " Speed rpm: 600 Del.quantity cm3/: 63.0...65.0 1000 s: (62.0...67.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.05 Speed rpm : 1324...1340 LOW IDLE Speed rpm : 325
Rack travel in mm : 4.4...4.6

Rack travel in mm: 4.4...4.6

Del.quantity cm3/: 7.0...11.0

1000 s: (4.5...13.5)

Spread cm3: 3.50

1000 s: (5.00)

•

Remarks:

J25

Aneroid pressure h: 1000

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm: 13.5 Firing order : 1-5-3-6-2-Note remarks Test sheet : DAF Edition : 31.05.94 Replaces Phasing Test oil : ISO-4113 0-60-120-180-240-300 Combination no. : 0 403 446 309 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Injection pump BASIC SETTING Pump designation : PES6MW100/720RS1227 EP type number : 0 413 406 215 1st speed rpm: 1000 Governor Governor design. : RQV325...1300MW126 Rack travel in mm : 13.0...13.1 : 0 420 083 279 Governer no. Del.quantity cm3/: 11.0...11.2 Cust. part no. : 1249951/5 100 s: (10.8...11.4) Customer-spec. information Customer : DAF Spread cm3 : 0.3Engine : NS156L 100 s: (0.6) 1st version kW : 156.0 2nd speed rpm : 325.0 Rated speed : 2600 Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 0.7...1.1 TEST BENCH REQUIREMENTS 100 s: (0.45...1.35) Spread cm3 : 0.3Test oil 100 s: (0.5) inlet temp. °C : 38...42 (B) Setting of injection pump Overflow valve with governor : 1 419 992 198 GUIDE SLEEVE TRAVEL Inlet press., bar: 1.50 1st speed rpm : 325 : 1.42...1.92 travel mm Test nozzle holder 2nd speed : 363 rpm assembly : 1 688 901 101 travel mm : 1.8...2.3 3rd speed : 490 man Opening. travel mm : 2.68...3.18 pressure, bar : 207...210 4th speed : 877 rpm : 4.75...5.25 travel mm 5th speed : 1345 mgn Test lines : 1 680 750 008 : 8.33...8.83 travel mm Outside diameter GUIDE SLEEVE POSITION x Wall thickness Speed rpm : 1350 Rack travel in mm : 15.2...17.8 x Length mm : 6.00x2.00x600 (A) Injection pump setting values FULL LOAD DELIV. AT FULL LOAD STOP Insp. values in parentheses Set equal delivery quant. 1st version per values _ Speed rpm : 1000 Aneroid pressure h: 1000 BEGINNING OF DELIVERY Del.quantity : 110.0...112.0 1000 : (109.0...114.0) Test pressure, bar: 30...32 : 3.50 Spread cm3 Prestroke mm : 3.00...3.10 1000 : (6.00)

J26

RATED SPEED 1st version Control Lever position degrees: 119...127 Testina: 1st rack travel in: 12.05 rpm : 1324...1340 Speed 2nd rack travel in: 4.00 rpm : 1455...1485 Speed 4th rack travel in: 1550 rpm : 0.0...1.0 Speed LOW IDLE 1 Control lever position degrees: 78...86 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 4.5 Testing: Speed rpm : 225 Minimum rack trave: 6.0 rpm : 325 Speed Rack travel in mm: 4.4...4.6 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 13.0...13.1 2nd speed inpri : 1300 Rack travel in m: 12.95...13.15 Aneroid/Altitude Compensator Test 1st version Setting Speed rom : 600 Pressure hPa : 1000 Rack travel mm : 13.0...13.1 Measurement Speed 1/min: 600 1st pressure hPa : 390 Rack travel in m: 12.2...12.3 2nd pressure hPa : 190 Rack travel in m: 10.9...11.1 3rd pressure hPa : -Rack travel in m: 10.0...10.2 FUEL DELIVERY CHARACTERISTICS

Speed : 1300 rpm Del.quantity cm3/: 105.5...108.5 1000 s: (103.0...110.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm: 600 Del.quantity cm3/: 63.0...65.0 1000 s: (62.0...67.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.05 Speed rpm : 1324...1340 LOW IDLE rpm : 325 Speed Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 7.0...11.0 1000 s: (4.5...13.5) Spread cm3: 3.50

1000 s: (5.00)

Remarks:

J27

1st version

Aneroid pressure h: 1000

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DAF Edition : 28.04.94 Replaces : ISO-4113 Test oil Combination no. : 0 403 446 310 Injection pump Pump designation PES6MW100/720RS1227Z EP type number : 0 413 406 215 Governor Governor design. : RQV325...1300MW126 Governer no. : 0 420 083 279 Cust. part no. : 1249952 Customer-spec. information Customer : DAF Engine : NS133L 1st version kW : 133.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 101 Openina pressure, bar : 207...210 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10 Rack travel in mm: 13.5 Firing order : 1-5-3-6-2-Phasing : 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING 1st speed rpm : 1000Rack travel in mm : 11.7...11.8 Del.quantity cm3/: 9.25...9.45 100 s: (9.15...9.65) Spread cm3 : 0.3100 s: (0.6) rpm : 325.0 2nd speed Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 0.7...1.1 100 s: (0.45...1.35) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1350 travel mn : 8.4...8.8 rpm : 875 2nd speed : 4.9...5.1 travel mm 3rd speed : 500 rpm travel mm : 2.7...3.3 : 325 4th speed mC1 : 1.5...1.9 travel mm GUIDE SLEEVE POSITION rpm : 1350Rack travel in mm : 15.2...17.8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000 Aneroid pressure h: 1000 : 92.5...94.5 Del.quantity 1000 : (91.5...96.5) Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 10.75 Speed rpm : 1324...1340 2nd rack travel in: 4.00 Speed rpm : 1440...1470 4th rack travel in: 1550 rpm : 0.0...1.0Speed LOW IDLE 1 Control lever position degrees: 78...86 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 4.5 Testing: Speed rpm : 225 Minimum rack trave: 6.0 rpm : 325 Rack travel in mm: 4.4...4.6 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 11.7...11.8 2nd speed rpm : 1300 Rack travel in m: 11.65...11.85 3rd speed rpm : 600 Rack travel in m: 9.8...10.0 Aneroid/Altitude Compensator Test 1st version Settina rpm : 600 hPa : 1000 Speed rpm Pressure : 11.7...11.8 Rack travel mm Measurement Speed 1/min: 600 1st pressure hPa : 290 Rack travel in m: 11.2...11.3 2nd pressure hPa : 160 Rack travel in m: 10.3...10.5 3rd pressure hPa : -Rack travel in m: 9.8...10.0 FUEL DELIVERY CHARACTERISTICS 1st version

Aneroid pressure h: 1000 Speed rpm : 1300 Del.quantity cm3/: 89.5...92.5 1000 s: (87.0...95.0) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 600 Del.quantity cm3/ : 62.0...64.0 1000 s: (60.0...66.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.75 Speed rpm : 1324...1340 LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.4...4.6 Del.quantity cm3/ : 7.0...11.0 1000 s: (4.5...13.5)

cm3 : 3.50 1000 s: (5.60)

Remarks:

Spread

:

K01

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF Edition : 31.05.94

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 446 310

Injection pump Purp designation : PES6MW100/720RS1227Z

EP type number : 0 413 406 217

Governor

Governor design. : RQV325...1300MW126

: 0 420 083 279 Governer no.

Cust. part no. : 1249952/3

Customer-spec. information : DAF Customer

Engine : NS133L

1st version kW : 133.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening |

pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.00...3.10 Prestroke mm

Rack travel in mm : 13.5

Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.7...11.8

Del.quantity cm3/: 9.25...9.45

100 s: (9.15...9.65)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 325.0 Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 0.7...1.1

100 s: (0.45...1.35)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 1.42...1.92 travel mm

2nd speed : 363 rpm travel mm : 1.8...2.3

3rd speed : 490 rpm

travel mm 2.68...3.18

: 872 4th speed rpm

: 4.72...5.22 travel mm

5th speed rpm : 1334

: 8.23...8.73 travel mm

GUIDE SLEEVE POSITION

rpm : 1350

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1000

Del.quantity : 92.3....96.5)

Spread cm3 : 3.501000 : (6.00)RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 10.75 rpm : 1324...1340 Speed 2nd rack travel in: 4.00 Speed rpm : 1440...1470 4th rack travel in: 1550 Speed rpm : 0.0...1.0LOW TOLE 1 Control Lever position degrees: 78...86 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 4.5 Testing: Speed rpm : 225 Minimum rack trave: 6.0 rpm : 325 Rack travel in mm: 4.4...4.6 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 11.7...11.8 2nd speed rpm : 1300 Rack travel in m: 11.65...11.85 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rom Pressure hPa : 1000 Rack travel mm : 11.7...11.8 Measurement 1/min: 600 Speed 1st pressure hPa : 290 Rack travel in m: 11.2...11.3 2nd pressure hPa : 160 Rack travel in m: 10.3...10.5 3rd pressure hPa : -Rack travel in m: 9.8...10.0 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 rpm : 1300 Speed Del.quantity cm3/: 89.5...92.5 1000 s: (87.0...95.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm: 600 Del.quantity cm3/: 62.0...64.0 1000 s: (60.0...66.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.75 Speed rpm : 1324...1340 LOW IDLE Speed : 325 rpm Rack travel in mm: 4.4...4.6 Del.quantity cm3/ : 7.0...11.0 1000 s: (4.5...13.5) cm3 : 3.50Spread 1000 s: (5.00) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF : 28.04.94 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 314

Injection pump

Pump designation : PES6MW100/720RS1227

EP type number : 0 413 406 215

Governor

Governor design. : RQ325/1300MW129 : 0 420 082 070 Governer no.

Cust. part no. : 1249932

Customer-spec. information Customer : DAF

Engine : NS156L

1st version kW : 156.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Openina

pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values __

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10

Rack travel in mm: 13.5 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 13.0...13.1

Del.quantity cm3/: 11.0...11.2

100 s: (10.8...11.4)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 325.0 2nd speed Rack travel in mm: 4.4...4.6

100 s: (0.45...1.35)

cm3 : 0.3Spread 100 s: (0.5)

(2) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1360travel mm : 6.3...6.7 rpm : 13002nd speed : 5.9...6.1 travel mm 3rd speed : 450 rpm : 3.5...4.1 travel mm 325 4th speed rom travel mni

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110

rpm : 800

Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1000

Del.quantity : 110.0...114.0)

: 3.50 Spread cm3 1000 : (6.00)

K04

RATED SPEED 1st version Control lever position degrees: 90...98 Setting point: Speed : 800 rom Rack travel in mm: 20.0 Testing: 1st rack travel in: 12.05 Speed rpm : 1334...1350 2nd rack travel in: 4.00 Speed rpm : 1440...1470 4th rack travel in: 1550 Speed rpm : 0.0...1.0LOW IDLE 1 Control lever position degrees: 74...78 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 4.5 Testing: Speed : 225 ricin. Minimum rack trave: 6.0 rpm : 325 Rack travel in mm: 4.4...4.6 SET IDLE AUXILIARY SPRING rpm : 475 Speed Rack travel in mm : 2.0 TORQUE CONTROL Torque control curve - 1st version rpm : 1900 1st speed Rack travel in m: 13.0...13.1 nd speed rpm : 1300 Rack travel in m: 12.95...13.15 2nd speed 3rd speed d speed rpm : 600 Rack travel in m: 10.0...10.2 rpm : 1000 4th speed Rack travel in m: 13.95...14.15 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 1000 Pressure Rack travel mm

: 13.0...13.1

1/min: 600

1st pressure hPa : 390 Rack travel in m: 12.2...12.3 2nd pressure hPa : 190 Rack travel in m: 10.9...11.1 3rd pressure hPa : -Rack travel in m: 10.0...10.2 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 1300 Del.quantity cm3/: 105.5...108.5 1000 s: (103.0...111.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 600 Del.quantity cm3/ : 63.0...65.0 1000 s: (61.0...67.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.05 rpm : 1334...1350 Speed LOW IDLE Speed rpm : 325 Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 7.0...11.0 1000 s: (4.5...13.5) cm3 : 3.50Spread 1000 s: (5.00) Remarks:

Measurement Speed

Note remarks

Test sheet

: DAF

Edition

: 31.05.94

Replaces

Test oil

: ISO-4113

Combination no. : 0 403 446 314

Injection pump

Pump designation : PES6MW100/720RS1227

EP type number

: 0 413 406 215

Governor

Governor design. : RQ325/1300MW129

Governer no.

: 0 420 082 070

Cust. part no. : 1249932/5

Customer-spec. information

Customer

: DAF

Engine

: NS156L

1st version kW

: 156.0

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 101

Opening |

pressure, bar

: 207...210

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10

Rack travel in sm : 13.5

Firing order : 1-5-3-6-2-

Phasing

0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed

rpm : 1000

Rack travel in mm : 13.0...13.1

Del.quantity cm3/: 11.0...11.2

100 s: (10.8...11.4)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 325.0 Rack travel in mm: 4.4...4.6

Del.quantity cm3/: 0.7...1.1

100 s: (0.45...1.35) Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm

: 1.76...1.96

2nd speed rpm : 424

: 3.25...3.45

travel mm

3rd speed rpm : 600

travel mm

5.9...6.1 4th speed 1300 rpm

5.9...6.1 travel mm : 1357

5th speed rpm travel mm

: 6.26...6.46

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110 rpm : 800

Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed

rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 110.0...114.0)

K06

Spread cm3 : 3.50 Speed $1/\min : 600$ 1000 : (6.00) 1st pressure hPa : 390 Rack travel in m: 12.2...12.3 2nd pressure hPa : 190 Rack travel in m: 10.9...11.1 RATED SPEED 1st version Control Lever 3rd pressure hPa : position degrees: 90...98 Rack travel in m: 10.0...10.2 Setting point: FUEL DELIVERY CHARACTERISTICS : 800 Speed man Rack travel in mn: 20.0 1st version Testina: Aneroid pressure h: 1000 1st rack travel in: 12.05 rpm : 1300 Speed Del.quantity cm3/: 105.5...108.5 1000 s: (103.0...111.0) Speed rpm : 1334...1350 2nd rack travel in: 4.00 Speed rpm : 1440...1470 4th rack travel in: 1550 Spread cm3 : 5.001000 s: (7.0) Speed rpm : 0.0...1.0Aneroid pressure h: -Speed rpm : 600 Del.quantity cm3/: 63.0...65.0 LOW IDLE 1 Control lever 1000 s: (61.0...67.0) position degrees: 74...78 Setting point w/out bumper spring rpm : 325 **BREAKAWAY** Rack travel in mm: 4.5 1st version Testing: 1mm rack travel less than rpm : 225 Speed Minimum rack trave: 6.0 full load rack tr: 12.05 rpm : 325 Speed rpm : 1334...1350 Rack travel in mm: 4.4...4.6 LOW IDLE SET IDLE AUXILIARY SPRING Speed rpm : 325 Rack travel in mm : 4.4...4.6 Speed rpm: 475 Rack travel in mm: 2.0 Del.quantity cm3/ : 7.0...11.0 TORQUE CONTROL 1000 s: (4.5...13.5) Torque control curve - 1st version Spread cm3 : 3.501st speed rpm : 1000 1000 s: (5.00) Rack travel in m: 13.0...13.1 rpm : 1300 2nd speed Remarks: Rack travel in m: 12.95...13.15 3rd speed rpm : 600 Rack travel in m: 10.0...10.2 4th speed rpm : 1000 Rack travel in m: 13.95...14.15 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 1000 Rack travel mm : 13.0...13.1

Measurement

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.2...4.3 Rack travel in mm : 11.5...14.5 Note remarks : 1-5- 3- 6- 2-Firing order Test sheet : RVI : 22.05.94 Edition Replaces Test oil : ISO-4113 Phasina 0-60-120-180-240-300 Combination no. : 0 403 446 316 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Injection pump Pump designation BASIC SETTING PES6MW100/320RS1216-1st speed rpm: 1175 : 0 413 406 223 EP type number Governor Rack travel in mm: 13.8...14.0 Governor design. RQV350...1175MW113-2 Del.quantity cm3/: 12.2...12.4 Governer no. : 0 420 083 248 100 s: (12.0...12.6) Customer—spec. information Customer Spread cm3 : 0.3: MIDR 060226 X Engine 100 s: (0.6) 1st version kW : 166.0 rpm : 275 2nd speed : 2350 Rack travel in mm : 5.95...6.35 Rated speed Del.quantity cm3/: 2.8...3.2 TEST BENCH REQUIREMENTS 100 s: (2.55...3.45) Spread cm3 : 0.3Test oil 100 s: (0.5) inlet temp. °C : 38...42 (B) Setting of injection pump Overflow valve with governor : 2 417 413 033 GUIDE SLEEVE TRAVEL Inlet press., bar: 1.50 rpm : 350 1st speed travel mm : 0.61...1.11 Test nozzle holder 2nd speed : 468 rpm assembly : 1 688 901 101 : 2.21...2.71 travel mm 3rd speed : 620 rpm **Opening** : 3.38...3.88 travel mm : 929 : 207...210 pressure, bar 4th speed rpm : 5.13...5.63 travel mm 5th speed : 1266 rpm Test lines : 1 680 750 008 : 6.86...7.36 travel mm Outside diameter GUIDE SLEEVE POSITION x Wall thickness Control-lever position x Length mm : 6.00x2.00x600 Degree: -1 rpm : 1460 (A) Injection pump setting values Rack travel in mm : 15.2...17.8 Insp. values in parentheses Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values 1st version BEGINNING OF DELIVERY Speed rpm : 1175

Aneroid pressure h: 1000

Test pressure, bar: 30...32

: 122.0...124.0 Del.quantity 1000 : (120.0...126.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 301...309 Testing: 1st rack travel in: 12.95 rpm : 1230...1240 Speed 2nd rack travel in: 4.00 : 1440...1480 Speed nom 4th rack travel in: 1600 rpm : 0.0...1.0 Speed LOW IDLE 1 Control lever position degrees: 244...252 Setting point w/out bumper spring rpm : 275 Rack travel in mm: 6.15 Testing: Speed rpm : 200 Minimum rack trave: 6.95 Speed rpm : 275
Rack travel in mm : 5.95...6.35 TURGUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 13.9...14.0 rpm : 700 2nd speed Rack travel in m: 13.9...14.0 Aneroid/Altitude Compensator Test 1st version Setting Speed rom : 500 hPa : 1000 Pressure Rack travel : 13.9...14.0 mm Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 10.05...10.65 2nd pressure hPa : 520 Rack travel in m: 13.15...11.25 3rd pressure hPa : 350 Rack travel in m: 10.95...11.25

1st version Aneroid pressure h: 1000 rpm : 700 Speed Del.quantity cm3/: 129.5...133.5 1000 s: (126.5...136.5) Spread cm3 : 6.001000 s: (9.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 67.0...69.0 1000 s: (65.0...71.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.95 Speed rpm : 1230...1240 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/ : 95.0...115.0 1000 s: (92.0...118.0) LOW IDLE Speed : 275 rpm Rack travel in mm : 5.95...6.35 Del.quantity cm3/: 28.0...32.0 1000 s: (25.5...34.5) cm3 : 3.50Spread 1000 s: (5.00) Remarks:

FUEL DELIVERY CHARACTERISTICS

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI Edition : 20.05.94 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 317 Injection pump Pump designation PES6MW100/320RS1214-EP type number : 0 413 406 224 Covernor Governor design. RQV275...1250MW115-K Governer no. : 0 420 083 994 Customer-spec, information Customer Engine : MIDR 060226 W 1st version kW : 151.0 : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 033 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 101 Opening pressure, bar : 207...210 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY

: 4.2...4.3 Prestroke mm Rack travel in mm : 16.5...19.5 : 1-5- 3- 6- 2-Firing order Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ}$: 0.50 (0.75) BASIC SETTING 1st speed rpm: 1250 Rack travel in mm : 14.1...14.2 Del.quantity cm3/ : 11.8...12.0 100 s: (11.6...12.2) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 275 Rack travel in mm : 5.95...6.35 Del.quantity cm3/: 1.9...2.3 100 s: (1.65...2.55) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 275 : 0751...1.25 travel mm 2nd speed : 390 rpm travel mm : 2.14...2.64 3rd speed : 550 rpm 3.67...4.17 travel mm : 924 4th speed rpm : 6.52...7.02 travel mm : 1344 5th speed rpm : 9.74...10.24 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1350 Rack travel in mm : 15.2...17.8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250

Aneroid pressure h: 1000

Test pressure, bar: 30...32

Del.quantity : 118.0...120.0 1000 : (116.0...122.0) cm3 : 3.50 1000 : (6.00) Spread RATED SPEED 1st version Control lever position degrees: 298...306 Testina: 1st rack travel in: 13.15 Speed rpm : 1305...1315 2nd rack travel in: 4.00 Speed rpm : 1455...1485 4th rack travel in: 1600 Speed rpm : 0.0...1.0 LOW IDLE 1 Control Lever position degrees: 240...248 Setting point w/out bumper spring Speed rpm : 275 Rack travel in mm: 6.05 Testina: Speed rpm : 200 Minimum rack trave: 6.65 Speed rpm : 275 Rack travel in mm : 5.95...6.15 Aneroid/Altitude Compensator Test 1st version Setting rpm : 1250 Speed hPa : 1000 Pressure Rack travel mm : 14.1...14.2 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.95...11.35 2nd pressure hPa : 300 Rack travel in m: 12.35...12.45 3rd pressure hPa : 200 Rack travel in m: 11.65...11.95 FUEL DELIVERY CHARACTERISTICS 1st version

Aneroid pressure h: 1000 Speed rpm : 700 Del.quantity cm3/: 115.5...118.5 1000 s: (113.0...121.0)

cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 79.0...81.0 1009 s: (77.0...33.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.15 Speed rpm : 1305...1315

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 95.0...115.0 1000 s: (92.0...118.0)

LOW IDLE

Speed rpm : 275 Rack travel in mm : 5.95...6.15 Del.quantity cm3/: 19.0...23.0 1000 s: (16.5...25.5)

cm3 : 3.50 1000 s: (5.00) Spread

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI Edition : 20.05.94 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 318 Injection pump Pump designation PES6MW100/320RS1214-EP type number : 0 413 406 224 Governor Governor design. : RQV275...1250MW115-1 Governer no. : 0 420 083 992 Customer-spec, information Customer : RVI : MIDR 060226 V Engine 1st version kW : 129.0 : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 033 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly **Opening** pressure, bar : 207...210 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

Test pressure, bar: 30...32

BEGINNING OF DELIVERY

Prestroke mm : 4.2...4.3 Rack travel in mm : 16.5...19.5 Firing order : 1-5- 3- 6- 2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING rom: 1250 1st speed Rack travel in mm : 13.1...13.2 Del.quantity cm3/: 11.2...11.4 Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 275 Rack travel in mm : 5.45...5.85 Del.quantity cm3/: 1.9...2.3 100 s: (1.65...2.55) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed travel mm : 0.76...1.26 2nd speed : 389 rpm travel mm 2.14...2.64 3rd speed rpm 560 3.77...4.27 travel mm 4th speed : 924 rpm travel mm : 6.53...7.03 : 1344 5th speed rpm : 9.75...10.25 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm: 1350 Rack travel in mm: 15.2...17.8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 Aneroid pressure h: 1000

Del.quantity : 112.0...114.0 1000 : (110.0...116.0) : 3.50 Spread cm3 1000 : (6.00)RATED SPEED 1st version Control Lever position degrees: 296...304 Testing: 1st rack travel in: 12.15 rpm : 1295...1315 Speed 2nd rack travel in: 4.00 Speed rpm : 1445...1475 4th rack travel in: 1600 rpm : 0.0...1.0Speed LOW IDLE 1 Control Lever position degrees: 238...246 Setting point w/out bumper spring Speed rpm : 275 Rack travel in mm: 5.65 Testina: Speed : 200 rpm Minimum rack trave: 6.25 Speed rpm : 275 Rack travel in mm : 5.45...5.85 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 13.1...13.2 2nd speed rpm : 700 Rack travel in m: 12.2...12.3 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1250 rpm hPa : 1000 Pressure Rack travel mm : 13.1...13.2 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 11.05...11.45 2nd pressure hPa : 240 Rack travel in m: 12.6...12.7 3rd pressure hPa : 120

Rack travel in m: 11.6...11.9

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 Speed rpm : 700 Del.quantity cm3/: 108.5...111.5 1000 s: (106.0...114.0) Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 89.0...91.0 1000 s: (87.0...93.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.15 Speed rpm : 1300...1310 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 95.0...115.0 1000 s: (92.0...118.0) LOW IDLE Speed rpm : 275 Rack travel in mm : 5.45...5.85 Del.quantity cm3/: 19.0...23.0 1000 s: (16.5...25.5) Spread cm3 : 3.501000 s: (5.00) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI : 20.05.94 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 446 319 Injection pump Pump designation PES6MW100/320RS1216-EP type number : 0 413 406 223 Governor Governor design. : RQV275...1250MW124K : 0 420 083 989 Governer no. Customer-spec. information Customer : RVI Engine : MIDR 060226 U 1st version kW : 110.0 Rated speed : 2500 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 033 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Opening pressure, bar : 207...210 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

: 4.2...4.3

per values ____

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING 1st speed rpm: 1250 Rack travel in mm : 13.2...13.3 Del.quantity cm3/: 10.6...10.8 100 s: (10.4...11.0) Spread cm3 : 0.3100 s: (0.6) rpm : 275 2nd speed Rack travel in mm : 5.85...6.25 Del.quantity cm3/ : 2.0...2.4 100 s: (1.75...2.65) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 275 : 0.75...1.25 travel mm rpm : 390 2nd speed : 2.14...2.64 travel mm 3rd speed : 550 rom : 3.77...4.27 travel mm rpm : 924 4th speed : 6.53...7.03 travel mm 5th speed : 1344 rpm : 9.75...10.25 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1350 Speed Rack travel in mm : 15.2...17.8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1250 Speed : 106.0...108.0 Del.quantity 1000 : (104.0...110.0)

Rack travel in mm : 11.5...14.5

cm3 : 3.50Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 296...304

Testing:

1st rack travel in: 12.25

rpm : 1305...1315 Speed

2nd rack travel in: 4.00

rpm : 1450...1480 Speed

4th rack travel in: 1600 Speed rpm : 0.0...1.0

LOW IDLE 1

Control Lever

position degrees: 241...249 Setting point w/out bumper spring

rpm : 275 Speed Rack travel in mm: 6.05

Testing:

Speed rpm : 200 Minimum rack trave: 6.65 nom : 275

Rack travel in mm : 5.85...6.25

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 13.2...13.3 2nd speed rpm : 700

Rack travel in m: 11.85...11.95

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 700 Speed

Del.quantity cm3/: 93.0...96.0 1000 s: (90.5...98.5)

cm3 : 5.00Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.25

rpm : 1305...1315 Speed

STARTING FUEL DELIVERY

Speed : 100 rom

K15

Del.quantity cm3/: 95.0...115.0

1000 s: (92.0...118.0)

LOW IDLE

Speed rpm : 275

Rack travel in mm: 5.85...6.25

Del.quantity cm3/: 20.0...24.0

1000 s: (17.5...26.5)

Spread cm3: 3.50

1000 s: (5.00)

Remarks:

Note remarks

Test sheet : MB

Edition : 31.05.94

Replaces : -

Test oil : ISO-4113

Combination no. : 0 403 474 020

Injection pump

Pump designation : PES4MW100/720RS1212

EP type number : 0 413 404 114

Governor

Covernor design. : RSV350...1200Mw0A346

Governer no. : 0 420 085 180

Cust. part no. : 0180747202

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM364LA

1st version kW : 99.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 688 901 101

Opening

pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x watt thickness

x Length mm : 8.00X2.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.7...3.8

: (3.65...3.85)

Rack travel in mm: 9.0...12.0

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 13.5...13.6

Del.quantity cm3/ : 9.3...9.5

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 6.0...6.8 Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3 100 s: (0.5)

.....

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm: 0.3...1.0

Governor spring pre-tension Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 1200 Aneroid pressure h: 700

Del.quantity : 96.0...98.0

1000 : (94.0...10.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Setting point:

Speed rpm : 800

K16

Rack travel in mm: 0.65 Testina: 1st rack travel in: 12.55 rpm : 1240...1245

2nd rack travel in: 4.00 rpm : 1289...1294 Speed

4th rack travel in: 1450 riom : 0.3...1.7 Speed

LOW IDLE 1 Rack travel in mm: 6.4

Testina: Speed rpm : 100 Minimum rack trave: 19.0 rpm : 350

Rack travel in mm: 6.0...6.8

TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 13.5...13.6

2nd speed rpm : 600 Rack travel in m: 13.45...13.65

Aneroid/Altitude Compensator Test

1st version Setting pm : 500 hPa : 700 Speed riom Pressure

: 13.5...13.6 Rack travel mm

Measurement 1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.65...10.85 2nd pressure hPa : 200 Rack travel in m: 11.9...12.0 3rd pressure hPa : 375

Rack travel in m: 12.9...13.2

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 700 rpm : 600

Del.quaritity cm3/: 84.5...87.5 1000 s: (82.0...90.0)

cm3 : 5.00Spread

1000 s: (7.00)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 39.0...41.0 1000 s: (37.0...43.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.55 Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 85.0...95.0

1000 s: (83.0...98.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.0...6.8 Del.quantity cm3/ : 10.0...14.0 1000 s: (7.5...16.5)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

Test hydr. locking device for starting with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

Note remarks

Test sheet : MAN

Edition : 06.06.94

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 099A

Injection pump

Pump designation : PES6MW100/320RS1209

EP type number : 0 413 406 200

Governor

Governor design. : RSV300...900MW1A802

: 0 420 085 113 Governer no.

: 3-7112 Cust. part no.

Customer-spec. information

Customer : MAN

Engine : D0826LE20

1st version kW : 141.0

Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Openina (

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.20...3.30 Prestroke mm

: (3.15...3.35)

Rack travel in mm : 14.0...16.0 Firing order : 1-5-3-6-2-

Phasing 0-60-120-180-240-300

Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 14.80...14.90

Del.quantity cm3/: 14.8...15.0

100 s: (14.5...15.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm: 6.6...7.4

Del.quantity cm3/: 3.4...3.8

100 s: (3.15...4.05) cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

: 148.0...150.0 Del.quantity

1000 : (145.0...153.0)

Spread

cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 88...96

Setting point:

Speed rpm : 800 Rack travel in mm : 0.65

Testing:

1st rack travel in: 13.80 rpm : 900...905 2nd rack travel in: 4.00 rpm : 936...941 Speed 4th rack travel in: 1050

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control Lever

position degrees: 64...72 Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.0 Speed : 300 rpm Rack travel in mm: 6.6...7.4

SET IDLE AUXILIARY SPRING rpm : 340 Speed Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.80 Speed rpm : 900...905

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.60...7.40 Del.quantity cm3/: 34.0...38.0 1000 s: (31.5...40.5)

cm3 : 6.00Spread

1000 s: (9.00)

Remarks:

Note remarks

Test sheet

: VME

Edition

: 30.05.94

Replaces

Test oil

: ISO-4113

Combination no. : 0 403 476 136

Injection pump

Pump designation : PES6MW100/320RS1237

EP type number

: 0 413 406 233

Governor

Governor design. RSV300...1100MW1A353

Governer no.

: 0 420 085 223

Customer-spec. information Customer

: VME

Engine

: TD61GD

1st version kW

: 92.0

Rated speed

: 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 681 343 009

Opening

pressure, bar

: 172...175

Test Lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.00...3.10

: (2.95...3.15)

Rack travel in mm: 9.0...13.0

: 1-5-3-6-2-Firing order

Phasing

0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed

rpm: 1100

Rack travel in mm: 13.15...13.25

Del.quantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 315.0

Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 0.4...0.8

Spread

100 s: (0.15...1.05) cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1100

Del.quantity : 105.0...107.0

1000 : (102.0...109.0)

Spread

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 106...114

Setting point:

rpm

Rack travel in mm: 0.65

K20

Testina: 1st rack travel in: 12.20 rpm : 1135...1145 Speed 2nd rack travel in: 4.00 Speed rpm: 1180...1210 4th rack travel in: 1250 Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 71...79 Setting point w/out bumper spring Speed rpm : 315 Rack travel in mm: 6.5 Testing: Speed rpm : 100 Minimum rack trave: 19.0 rpm : 315 Rack travel in mm: 6.4...6.6 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 13.15...13.25 2nd speed rpm : 500 Rack travel in m: 13.8...14.0 3rd speed rpm : 660 Rack travel in m: 13.4...13.6 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.20 Speed rom : 1135...1145 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 83.0...97.0 1000 s: (100.0...80.0) Rack travel in mm : 20.0...21.0 LOW IDLE Speed rpm : 315 Rack travel in mm : 6.40...6.60 1000 s: (5.50)

Remarks:

Note remarks

Test sheet : MAN

: 31.05.94 Edition

f'eplaces

Test oil : ISO-4113

Combination no. : 0 403 486 105

Injection pump

Pump designation : PES6MW100/321RS1231

EP type number : 0 413 406 225

Governor

Governor design. RSV300...1100Mw0A343

: 0 420 085 209 Governer no.

Cust, part no. : 3-7263

Customer-spec, information : MAN

Customer

Engine

: D0826LE522

1st version kW : 154.0

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2,00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.5...3.6

: (3.45...3.65)

Rack travel in mm: 9.0...13.0 Firing order

: 1-5- 3- 6- 2-

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed

Spread

rpm: 1100

Rack travel in mm : 12.05...12.15

Del.quantity cm3/: 14.3...14.5

100 s: (14.0...14.8)

cm3 : 0.4

100 s: (0.7)

rpm : 300 2nd speed

Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 0.9...1.3

100 s: (0.65...1.55)

cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1100

Aneroid pressure h: 1000

Del.quantity

: 143.0...145.0

1000 : (140.0...148.0)

Spread

: 4.00 cm3

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Setting point: Speed rpm : 800 Rack travel in mm: 0.65 Testing: 1st rack travel in: 11.00 rpm : 1150...1160 Speed 2nd rack travel in: 4.00 Speed rpm : 1230...1260 4th rack travel in: 1350 rpm : 0.30...1.70Speed LOW IDLE 1 Control Lever position degrees: 72...80 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.0 Testing: Speed : 100 rom Minimum rack trave: 19.0 rpm : 300 Rack travel in mm: 4.9...5.1 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.0 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.05...12.15 2nd speed rpm : 900 Rack travel in m: 12.3...12.4 3rd speed rpm : 600 Rack travel in m: 12.3...12.5 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 LDW. hPa : 1000 Pressure : 12.3...12.5 Rack travel mm Measurement Speed 1/min: 500 1st pressure hPa : -

Speed 1/min: 500

1st pressure hPa: Rack travel in m: 9.4...9.5
2nd pressure hPa: 150
Rack travel in m: 9.7...9.8
3rd pressure hPa: 600
Rack travel in m: 11.6...11.9

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00 Speed rpm : 1150...1160

STARTING FUEL DELIVERY

LOW IDLE

1000 s: (5.50)

Remarks:

Note remarks

Test sheet : MAN

Edition : 05.06.94

Replaces

Test oil : ISO-4113

Combination no. : 0 403 486 108

Injection pump

Pump designation: PES6MW100/321RS1208

EP type number : 0 413 406 199

Governor

Governor design. RSV350...900MJ1A360-

Governer no. : 0 420 085 239

Cust. part no. : 3-7311

Customer-spec. information

Customer

: D0826LE102

: MAN

Engine

1st version kW : 154.C

Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6

: (3.45...3.65)

Rack travel in mm : 9.0...13.0 Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 870

Rack travel in mm : 14.85...14.95

Del.quantity cm3/: 15.8...16.0

100 s: (15.5...16.3)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 350 2nd speed

Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 1.1...1.5

100 s: (0.85...1.75)

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed rpm : 1100

Del.quantity : 158.0...160.0

1000 : (155,0...163.0)

cm3 : 4.00 1000 : (7.50) Spread

RATED SPEED

1st version

Control lever

position degrees: 87...95

Setting point:

rom : 800 Speed Rack travel in mm: 0.65 Testina: 1st rack travel in: 13.80 rpm : 915...925 Speed 2nd rack travel in: 4.00 Speed rpm : 965...975 4th rack travel in: 1050 rpm : 0.30...1.70 Speed 5th rack travel in: 965...995 Speed rpm : 4.00 LOW IDLE 1 Control Lever position degrees: 64...72 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 4.5 Testing: Speed rpm : 100 Minimum rack trave: 19.0 rpm : 350 Speed Rack travel in mm: 4.4...4.6 SET IDLE AUXILIARY SPRING Speed rpm: 350 TORQUE CONTROL

Rack travel in mm: 4.9...5.1

Torque control curve - 1st version 1st speed rpm : 870 Rack travel in m: 14.85...14.95
2nd speed rpm : 500
Rack travel in m: 14.8...15.0 rpm : 700 3rd speed

Rack travel in m: 14.8...15.0

1st version 1mm rack travel less than

full load rack tr: 13.80 rpm : 915...925 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 140.0...160.0 1000 s: (137.0...163.0)

LOW IDLE

BREAKAWAY

rpm : 350 Speed Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 11.0...15.0 1000 s: (8.5...17.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

K25

Note remarks

Test sheet : MWM

Edition : 07.06.94 Replaces : 16.07.93 : ISO-4113

Test oil

: 9 400 085 243

Injection pump

Combination no.

Pump designation : PES4A80D320RS1282-1

EP type number : 9 400 083 097

Governor

Governor design. RS350/1500A2C2073-2R

Governer no. : 9 420 083 269

Customer-spec, information

Customer

Engine

: D 229-4

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina .

pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75

: (2.60...2.80)

Rack travel in mm : 9.00...12.00

Firing order

: 1-3-4-2

Phasina : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed crom : 1500

Rack travel in mm : 9.20...9.30

Del.quantity cm3/: 5.8...5.9

100 s: (5.6...6.0)

Spread cm3 : 0.2

100 s: (0.4)

rpm : 350.0 2nd speed

Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 0.7...1.0

100 s: (0.5...1.2)

Spread cm3 : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500

Del.quantity : 58.0...59.0

: (56.5...60.5) : 2.50 1000

Spread cm3

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 111...119

Testing:

1st rack travel in: 8.20 rpm : 1580...1590 Speed 2nd rack travel in: 4.00 Speed rpm : 1625...1655 4th rack travel in: 1800 Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 78...86 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.1 Testing: rpm : 250 Speed Minimum rack trave: 6.80 Speed rpm : 350 Rack travel in mm : 6.00...6.20 Rack travel in mm: 4.00 rpm : 430...490 Speed : 550 Speed rpm Maximum rack trave: 3.20 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1500 Rack travel in m: 9.20...9.30 2nd speed rpm : 500 Rack travel in m: 10.60...10.70 3rd speed rpm : 900 Rack travel in m: 10.20...10.40 4th speed rpm : 1200 Rack travel in m: 9.50...9.80 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 500 Speed Del.quantity cm3/: 58.0...61.0 1000 s: (56.5...62.5) Speed rpm : 900 Del.quaritity cm3/: 62.5...65.5 1000 s: (61.0...67.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.20 rpm : 1540...1550 Speed STARTING FUEL DELIVERY Speed rpm : 100 Rack travel in mm : 19.00...21.00

Remarks:

K27

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.60...4.70 : (4.55...4.75) Note remarks Rack travel in mm : 21.00 Firing order : 1-3-5-4-2 Test sheet Edition : 7.6.94 Replaces Test oil : ISO-4113 Phasing : 0-72-144-216-288 Combination no. : 9 400 087 484 Tolerance + - ° : 0.50 (0.75) Injection pump Time to cyl. no. : 5 Pump designation : PES5P120A720LS7280 EP type number : 9 400 087 087 BASIC SETTING Governor Governor design. : RQV300...1050PA1114 rpm:6001st speed : 9 420 080 361 Governer no. Rack travel in mm: 12.20...12.30 Customer-spec. information Del.quantity cm3/: 19.3...19.5 Customer : MRECEDES-BENZ Engine : OM 449 LA 100 s: (19.0...19.8) 1st version kW : 184.0 Spread cm3 : 0.5Rated speed : 2100 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0 Rack travel in mm: 5.2...5.4 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.3) Overflow valve Spread cm3 : 0.8: 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 105 GUIDE SLEEVE TRAVEL. rpm : 1050 1st speed Opening travel mm : 7.70...7.90 : 207...210 pressure, bar 2nd speed rpm : 300travel mm : 0.50...1.00 Orifice plate 3rd speed : 500 rpm diameter mm : 3.00...3.50 : 0,8 travel mm : 700 4th speed rpm travel mm 5.20...5.70 Test lines : 1 680 750 075 : 1165 5th speed rpm : 9.20...9.70 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION x Length mm : 8.00x2.50x1000 Control-lever position Degree: -1 (A) Injection pump setting values rpm : 1115 Speed Insp. values in parentheses Rack travel in mm : 15.20...17.80 Set equal delivery quant. per values FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY 1st version Test pressure, bar: 25...27 Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 193.0...195.0 Rack travel in m: 11.60...11.80 1000 : (190.0...198.0) 3rd pressure hPa : 1080 cm3 : 5.00 Rack travel in m: 12.40...12.50 Spread 1000 : (9.00)4th pressure hPa : 1200 Rack travel in m: 12.70...12.90 RATED SPEED 5th pressure hPa : -Rack travel in m: 10.10...10.40 1st version Control lever START CUT-OUT position degrees: 117...125 1/min: 250 (260) Speed Testing: 1st rack travel in: 11.10 FUEL DELIVERY CHARACTERISTICS rpm : 1105...1115 Speed 2nd rack travel in: 4.00 rpm : 1155...1185 Speed 1st version 4th rack travel in: 1300 Aneroid pressure h: 1500 rpm : 0.00...1.00Speed Speed rpm : 1050 Del.quantity cm3/: 194.0...198.0 1000 s: (191.0...201.0) LOW IDLE 1 Control Lever cm3 : 8.00 Spread position degrees: 79...87 1000 s: (12.) Aneroid pressure h: 1500 Testing: rpm_ : 800 Speed Speed rpm : 100 Del.quantity cm3/: 218.5...222.5 Minimum rack trave: 8.00 1000 s: (215.5...225.5) : 300 Spread rpm cm3 : 8.00Rack travel in mm : 5.20...5.40 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 120.0...122.0 1000 s: (117.0...125.0) CONSTANT REGULATION rpm : 250...400 Speed TORQUE CONTROL Spread cm3 : 5.00Dimension a mm : 1.00 1000 s: (9.00) Torque control curve - 1st version rpm : 1050 1st speed Rack travel in m: 12.0...12.2 **BREAKAWAY** rpm : 800 2nd speed Rack travel in m: 13.0...13.2 1st version rpm : 900 3rd speed 1mm rack travel less than Rack travel in m: 12.7...12.9 4th speed rpm : 950 full load rack tr: 11.10 Rack travel in m: 12.4...12.6 Speed rpm : 1105...1115 Aneroid/Altitude STARTING FUEL DELIVERY Compensator Test rpm : 100 1st version Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) Setting Speed : 600 rom hPa : 800 Pressure Remarks: Rack travel mm : 12.20...12.40 Measurement 1/min: 600 Speed 1st pressure hPa : 360 Rack travel in m: 10.60...10.80 2nd pressure hPa : 500

L01

Note inst. in remarks column

Test scheet : MAN : 26.05.94 Edition : 12.93 replaces

Calibrating oil : ISO-4113

Injection pump : VE4/10F1350R418-2 Type number : 0 460 404 076

Customer Part-No. :

Customer-specific information

Customer : MAN

Engine : D 0824 GF 03

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 109

Opening

bar: 207.00...210.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1000

Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000

Setting value bar: 6.40...7.00

Shutoff

electromagnet Volt: 24

Full-load del. w/out charge press.:

1/min: 1000 Speed

Del. quantity cm3/

1000s.: 76.00...77.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0

1000s.: (4.5)

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/ 1000s.: 7.00...13.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 3.5

1000s.: (3.5)

Full-load speed regulation

1/min: 1420 Speed

Del. quantity cm3/ 1000s.: 58.00...62.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 64.00...66.00

1000s.: 65.00 mind

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1350

mm: 6.00...6.80 TD travel

mm: -

electromagnet Volt: 24

2nd speed 1/min: 1200

mm: 4.30...5.10 TD travel mm: (4.00...5.40)

Shutoff

electromagnet Volt: 24 3rd speed 1/min: 1000

mm: 2.20...2.60 TD travel

mm: (1.70...3.10)

Shutoff	+ Del. quantity cm3/: 58.0062.00
electromagnet Volt: 24	1000\$.: (53.5066.50)
4th speed 1/min: 900	+ 5th speed 1/min: 1350
TD travel mm: 1.001.80 mm: (0.702.10)	+ Shutoff
Shutoff	+ electromagnet Volt: 24 + Del. quantity cm3/: 75.7078.70
electromagnet Volt: 24	1000s.: (74.2080.20)
cesser of any received to the second	6th speed 1/min: 1000
Supply-pump pressure characteristic:	+ Shutoff
, , , , , , , , , , , , , , , , , , ,	- electromagnet Volt: 24
1st speed 1/min: 600	Del. quantity cm3/: 76.0077.00
Supply-pump	1000s.: (74.0079.00)
pressure bar: 4.305.00	7th speed 1/min: 800
Shutoff	+ Shutoff
electromagnet Volt: 24	t electromagnet Volt: 24
2nd speed 1/min: 1000	bel. quantity cm3/: 77.0081.00
Supply-pump pressure bar: 6.407.00	1000s.: (75.5082.50) + 8th speed 1/min: 600
Shutoff	+ Shutoff
electromagnet Volt: 24	electromagnet Volt: 24
3rd speed 1/min: 1200	Del. quantity cm3/: 63.0069.00
Supply-pump	+ 1000s.: (62.0070.00)
pressure bar: 7.408.00	+
Shutoff	<pre>- Mech. shutoff:</pre>
electromagnet Volt: 24	+ Mech. Abstellung:
Overland manufacture to a small and a	Ť 4
Overlow quantity at overflow valve:	1st speed 1/min: 1350
1st speed 1/min: 600	+ Del. quantity cm3/: 0.003.00
Shutoff	† 1000s.: - + Shutoff
electromagnet Volt: 24	= electromagnet volt: 24
Overflow : 41.7086.40	T event omagnet vott. 24
quantity cm3/10s: (26.70101.40)	Electr. shutoff:
2nd speed 1/min: 1350	+
Shutoff	+ 1st speed 1/min: 300
electromagnet Volt: 24	+ Del. quantity cm3/: 0.003.00
Overflow : 55.60139.00	1960s.: (0.003.00)
quantity cm3/10s: (40.60154.00)	+ Shutoff
Dolás com como and bandles as also	+ electromagnet volt: -
Delivery-quant. and breakaway char.:	Tallo do láveros
	idle delivery:
1nd speed 1/min: 1550	1st speed 1/min: 300
Shutoff	+ Shutoff
electromagnet Volt: 24	+ electromagnet Volt; 24
Del. quantity cm3/: 0.003.00	+ Del. quantity cm3/: 7.0013.00
1000s.: -	† 1000s.: (4.5015.50)
2nd speed 1/min: 1510	+ Dispersion cm3/: 3.5
Shutoff	† 1000s.: (3.5)
electromagnet Volt: 24 Del. quantity cm3/: 0.0015.00	2nd speed 1/min: 450
1000s.: -	+ Shutoff
3rd speed 1/min: 1460	<pre>+ electromagnet Volt: 24 + Del. quantity cm3/: 0.003.00</pre>
Shutoff	10005.: (0.003.00)
electromagnet Volt: 24	+
Del. quantity cm3/: 15.0045.00	Automatic starting fuel delivery:
1000s.: -	+
4th speed 1/min: 1420	1st speed 1/min: 350
Shutoff electromagnet Volt: 24	+ Shutoff
areas and a second a second and a second and a second and a second and a second and	+ electromagnet Volt: 24

Del. quantity cm3/: 65.00...105.00

1000s.: (65.00...105.00)

1/min: 450 2nd speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 40.00...70.00 1000s.: (40.00...70.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 64.00...66.00 1000s.: (64.00...66.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: -**KF** mm: 5.0...5.4 MS mm: 1.0...1.2 mm: 37.4...41.4 Ya mm: 39.4...44.6 Yb

Remarks:

: MAN 51.11103-721

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on crive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Pump with slave plunger

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = \max . 5.0 ccm/1000 S.

Note inst. in remarks column

Test scheet : PER

Edition : 09.06.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1300R529 Type number : 0 460 424 097

Customer Part-No. :

Customer-specific information Customer : PERKINS

: T4.40 110TI Engine "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Openina |

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 688 901 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 850 Speed Charge press. hPa: 1200 Setting value mm: 1.50...1.70

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 850

Charge press hPa: 1200 Setting value bar: 6.00...6.60

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 1000 Charge press. hPa: 1200

Del. quantity cm3/

1000s.: 73.50...74.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 57.50...58.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/ 1000s.: 8.00...12.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1440 Charge press hPa: 1200 Del. quantity cm3/ 1000s.: 48.00...52.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 80.00...140.00 mind 1000s.: 80.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

TD travel mm:	950 1200 2.403.00 (2.003.40)	+++++++++++++++++++++++++++++++++++++++	Delivery-quant. and	breakaway char.:
Shutoff electromagnet Volt:		Ī	1nd speed 1/min: Charge-air pressure	
3rd speed 1/min:		I	point hPa:	
	1200	1		5.6
TD travel mm:	1.501.70	+	Shutoff	
	(0.902.30)	+	electromagnet Volt:	
Shutoff	01	+	Del. quantity cm3/:	
electromagnet Volt:		+		(66.0072.00)
4th speed 1/min: Charge press hPa:	1200	†	2nd speed 1/min:	
TD travel mm:	0.309.90	J.	Charge press. hPa: Shutoff	1200
	(0.001.20)	1	electromagnet Volt:	24
Shutoff	(3.55,7,7,25)	1	Del. quantity cm3/:	0.003.00
electromagnet Volt:	24	+		(0.003.00)
5th speed 1/min:	1300	+	3rd speed 1/min:	
	1200	+	Charge press. hPa:	1200
	3.003.60	+	Shutoff	
Shutoff	(2.604.00)	+	electromagnet Volt:	
electromagnet Volt:	3/.	†	Del. quantity cm3/:	24.0036.00
etetti ollagnet vott:	24	I	5th speed 1/min:	(20.0040.00)
Supply-pump pressure	• characteristic:	I.	Charge press. hPa:	
and the State of the condition		+	Shutoff	(200
1st speed 1/min:	1300	+	electromagnet Volt:	24
Charge press. hPa:	1200	+	Del. quantity cm3/:	
Supply-pump	7.00	+		(44.0056.00)
	7.908.50	+	9th speed 1/min:	
Shutoff electromagnet Volt:	2/.	†	Charge press. hPa:	1200
2nd speed 1/min:		Ť	Shutoff	2/.
	1200	Ι	electromagnet Volt: Del. quantity cm3/:	
Supply-pump	1200	I	1000s	(74.0081.00)
pressure bar:	6.006.60	+	12th speed 1/min:	
Shutoff		+	Charge press. hPa:	
electromagnet Volt:	24	+	Shutoff	
3rd speed 1/min:		+	electromagnet Volt:	
Charge press. hPa:	1200	†	Del. quyntity cm3/:	73.5074.50
Supply-pump pressure bar:	4.505.10	Ť	16th speed 1/min:	(71.0077.00)
Shutoff	4.505.10	I	Charge press. hPa:	
electromagnet Volt:	24	1	Shutoff	
		+	electromagnet volt:	24
Overlow quantity at	overflow valve:	+	Del. quantity cm3/:	53.5058.50
	700	+	1000н.:	(52.5059.50)
1st speed 1/min:		+	18th speed 1/min:	
Charge press. hPa: Shutoff	1200	+	Charge press. hPa:	
electromagnet Volt:	24	Ī	Shutoff	2/.
Overflow :	41.7083.40	I	electromagnet Volt: Del. quantity cm3/:	
quantity cm3/10s:		1		(55.0061.00)
2nd speed 1/min:		+	20th speed 1/min:	
Charge press. hPa:		+	Charge press. hPa:	
Shutoff	2,	+	Shutoff	
electromagnet Volt:		+	electromagnet Volt:	
	55.60139.00	†	Del. quantity cm3/:	/2.UU/5.00
quantity cm3/10s:	(40.00(34.00)	†	10005.:	(70.0077.00)

Mech. shutoff: Mech. Abstellung:

1st speed 1/min: 1300 Charge press. hpa: 1200 Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 300 Charge press. hPa: -

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 300

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 8.00...12.00

1000s.: (5.00...15.00)

cm3/: 5.0 Dispersion

1000s.: (5.0) 2nd speed 1/min: 400

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 150

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 80.00...140.00

1000s.: (80.00...140.00)

2nd speed 1/min: 250

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 35.00...75.00

1000s.: (35.00...75.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 80.00...140.00 1000s.: (80.00...140.00)

Shutoff electromagnet:

Cut-in

: 20.0 min voltage : 24.0 Rated voltage

L07

Mounting and assembly dimensions:

Designation

mm: 3.6...3.8 KF mm: KOT MS1 mm: 1.0...1.3

SVS max. mm: mm: 5.6 LDA stroke

mm: 31.5...33.5 Ya Yb mm: 47.7...56.3

Remarks:

Ya = Distance between VE flange and

speed-control lever in idle

position

Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed

position

Measurement point = edge of control

lever on distributor-head end

Note inst. in remarks column

Test scheet : MAN

: 09.06.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1200R568 Type number : 0 460 424 101

Customer Part-No. :

Customer-specific information

Customer : MAN

: D 0824 LFL 01 Engine

"DĬ"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 110

Openina

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 688 901 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

Start of delivery

mm: 840

Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 850 Charge press. hPa: 1500

Setting value mm: 2.00...2.40

AFB/AFB

valve Volt: 12

Supply-pump pressure

1/min: 850

Charge press hPa: 1500 Setting value bar: 6.40...7.00

KSB/AFB

valve Volt: 12

Full-load del. with charge press.:

1/min: 1000 Charge press. hPa: 1500 Del. quantity cm3/

1000s.: 107.50...108.50

KSB/AFB

valve Volt: 12 cm3/: 4.0 Dispersion

1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550

Del. quantity cm3/

1000s.: 60.50...61.50

11

KSB/AFB valve Volt: 12

Low-idle speed regulation

1/min: 400

Del. quantity cm3/

1000s.: 8.00...12.00

KSB/AFB

valve Volt: 12 Del. quantity cm3/: 6.0 1000S.: (6.5)

Full-load speed regulation

1/min: 1300 Speed Charge press hPa: 1500

Del. quantity cm3/

1000s.: 72.00...78.00

KSB/AFB

valve Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 100.00...160.00

1000s.: 100.0 mind

KSB/AFB

Volt: 12 Valve

Inspection-pump test specifications Test specifications in parentheses

Timing-device chara		‡	Overflow : quantity cm3/10s:	55.60139.00 (40.60154.00)
2nd speed 1/min:		+		
Charge press hPa:	1500	+	Delivery-quant. and	breakaway char.:
TD travel mm:	3.604.40 (3.304.70)	†		
KSB/AFB		1	1nd speed 1/min:	550
valve Volt:	12	I		
3rd speed 1/min:		T	Charge-air pressure	
		+	point hPa:	400
Charge press hPa:	1500	+	KSB/AFB	
TD travel mm:		+	valve Volt:	
mn:	(1.502.90)	+	Del. quantity cm3/:	83.5084.50
KSB/AFB		+		(81.5086.50)
valve Volt:	12	1	2nd speed 1/min:	
4th speed 1/min:	750	1	Charge press. hPa:	
Charge press hPa:	1500	T		1300
The travel	0.40 4.40	T	KSB/AFB	40
TD travel mm:	0.001.40	†	vaive Volt:	
	(0.301.70)	+	Del. quantity cm3/:	0.003.00
KSB/AFB		+	1000s.:	(0.003.00)
valve Volt:		+	3rd speed 1/min:	1340
5th speed 1/min:	1200	+	Charge press. hPa:	
	1500	1	KSB/AFB	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
TD travel mm:	4 50 5 30	1	valve Volt:	12
	(4.505.30)	T.	Del. quantity cm3/:	
KSB/AFB	(4.505.50)	T		
	40	†	1000s.:	
valve Volt:	12	†	5th speed 1/min:	
0		+	Charge press. hPa:	1500
Supply-pump pressui	e characteristic:	+	KSB/AFB	
		+	valve Volt:	12
1st speed 1/min:		+	Del. quantity cm3/:	72.0078.00
Charge press. hPa:	1500	+	1000s.:	-
Supply-pump		+	8th speed 1/min:	1260
pressure bar:	4.905.50	+	Charge press. hPa:	
KSB/AFB		+	KSB/AFB	
valve Volt:	12	1	valve Volt:	12
2nd speed 1/min:	850	1	Del. quantity cm3/:	97 00 103 00
Charge press. hPa:	1500	\perp		(95.00105.00)
Supply-pump	1300	\mathbf{I}	9th speed 1/min:	
pressure bar:	6.407.00	I	Charge press. hPa:	
KSB/AFB	0.407.00	T		1200
valve Volt:	12	T	KSB/AFB	13
		†	valve Volt:	
		†	Del. quantity cm3/:	
	1500	†		(99.50107.50)
Subiafy-brumb	0.40 0.70	†	12th speed 1/min:	
	8.108.70	+	Charge press. hPa:	1500
KSB/AFB		+	KSB/AFB	
valve Volt:	12	+	valve Volt:	
		+	Del. quyntity cm3/:	107.50108.50
Overlow quantity at	overflow valve:	+	1000s.:	(105.50110.50)
		+	15th speed 1/min:	850
1st speed 1/min:	550	+	Charge press. hPa:	
Charge press. hPa:	-	1	KSB/AFB	
KSB/AFB		1	valve Volt:	12
valve Volt:	12	1	Del. quantity cm3/:	
	41.7086.10	1		(110.00118.00)
	(26.70101.10)	T	17th speed 1/min:	
2nd speed 1/min:		\perp	Charge press. hPa:	
Charge press. hPa:		T		
KSB/AFB	1,000	T	KSB solenoid-operate	
	12	T	valve volt:	16
valve Volt:	16	+		

Del. quantity cm3/: 110.00...115.00 1000H.: (108.50...116.50) 18th speed 1/min: 550 Charge press. hPa: -KSB/AFB valve Volt: 12 Del. quantity cm3/: 60.50...61.50 1000s.: (58.00...64.00) 1/min: 550 20th speed Charge press. hPa: 1500 KSB/AFB valve Volt: 12 Del. quantity cm3/: 109.50...118.50 1000s.: (108.00...120.00) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1200 Charge press. hPa: 1500 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) KSB/AFB Volt: 12 valve Idle delivery: 1/min: 400 1st speed KSB/AFB valve Volt: 12 Del. quantity cm3/: 13.00..17.00 1000s.: (10.00...20.00) Dispersion cm3/: 6.0 1000s.: (6.5) 1/min: 500 2nd speed KSB/AFB valve Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1/min: 330 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.00...105.00 1000s.: -2nd speed 1/min: 430 Del. quantity cm3/: 40.00...80.00 1000s.: -3rd speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 44.00...46.00 L 1000s.: (37.00...53.00) 4th speed 1/min: 100

Shutoff electromagnet Volt: 12
Del. quantity cm3/: 100.0...160.0 V
1000S.: -Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: -KF mm: KOT MS1 mm: 1.3...1.6 mm: 37.4...40.4 Ya Yh mm: 35.4...40.6 Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end Pump with slave plunger Starting delivery check V = Speed-control lever in full-load position Starting delivery check L = Speed-control lever in idle position

Note inst. in remarks column

Test scheet

Edition

: 10.06.94

replaces

Calibrating oil

: ISO-4113

Injection pump

: VE4/12F1150R587

Type number

: 0 460 424 105

Customer Part-No. :

Customer-specific information

Customer

. MAN

Engine

: "DI" 0824 LUE 521

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil

return temp.

with thermometer : 40.00...48.00

Electronically : 42.30...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 110

Openina |

Pressure

bar: 250.00...253.00

Perforated-plate

diameter

mm: 0.5

Test inj. tubing : 1 688 901 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed

1/min: 900

Charge press. hPa: 1000

Setting value mm: 1.80...2.20

L11

AFB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900

hPa: 1000 Charge press

Setting value bar: 6.70...7.30

KSB/AFB

valve **Volt: 12**

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800

Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 107.50...108.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Dispersion cm3/: 4.0

1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 450

Del. quantity cm3/

1000s.: 62.50...63.50

11

KSB/AFB valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 18.00...22.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 6.0 1000s.: (6.5)

Full-load speed regulation

Speed 1/min: 1230

Charge press hPa: 1000

Del. quantity cm3/

1000s.: 72.00...78.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Charge press. hPa: 1000 Start: Supply-pump bar: 7.10...7.70 pressure 1/min: 100 Speed KSB/AFB Del. quantity cm3/: 90.00...150.00 Volt: 12 valve mind 1000s.: 90.00 Shutoff KSB/AFB electromagnet Volt: 12 Volt: 12 Valve Shutoff Overlow quantity at overflow valve: electromagnet Volt: 12 1/min: 450 1st speed Charge press. hPa: - KSB/AFB Inspection-pump test specifications Test specifications in parentheses val ve Volt: 12 Timing-device characteristic: Shutoff electromagnet Volt: 12 2nd speed 1/min: 1600 : 41.70...86.10 **Overflow** hPa: 1000 cm3/10s: (26.70...101.10) Charge press quantity mm: 2.40...3.20 TD travel 2nd speed 1/min: 1150 mm: (2.10...3.50) Charge press. hPa: 1000 KSB/AFB KSB/AFB Volt: 12 valve valve Volt: 12 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 : 55.60...139.00 3rd speed 1/min: 900 Overflow Charge press hPa: 1000
TD travel mm: 1.80...2.20
mm: (1.30...2.70) cm3/10s: (40.60...154.00) quantity Delivery-quant. and breakaway char.: KSB/AFB valve Volt: 12 Shutoff 1nd speed 1/min: 450 electromagnet Volt: 12 Charge-air pressure-setting 1/min: 800 4th speed point hPa: 400 Charge press hPa: 1000 KSB/AFB TD travel mm: 0.80...1.60 valve Volt: 12 mm: (0.50...1.90) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 89.50...90.50 1000s.: (86.50...93.50) KSB/AFB val.ve Volt: 12 Shutoff electromagnet Volt: 12 1/min: 1350 2nd speed Charge press. hPa: 1000 Supply-pump pressure characteristic: KSB/AFB valve Volt: 12 1st speed 1/min: 450 Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 3rd speed 1/min: 1320 Supply-pump bar: 4.70...5.30 pressure KSB/AFB valve Volt: 12 Charge press. hPa: 1000 Shutoff KSB/AFB electromagnet Volt: 12 2nd speed 1/min: 900 valve Volt: 12 Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 Del. quantity cm3/: 0.00...15.00 1000s.: (0.00...15.00) Supply-pump bar: 6.70...7.30 pressure KSB/AFB 4th speed 1/min: 1270 valve Volt: 12 Charge press. hPa: 1000 Shutoff KSB/AFB electromagnet Volt: 12 valve Volt: 12

3rd speed

1/min: 1000

Shutoff		+	Shutoff
electromagnet Volt:	12	+	electromagnet volt: 12
Del. quantity cm3/:	15.0055.00	+	KSB/AFB
10005.:	(15.0055.00)	+	valve Volt: 12
5th speed 1/min:		†	met i i ee
Charge press. hPa:	1000	†	Electr. shutoff:
KSB/AFB	13	†	4-4
valve Volt: Shutoff	12	†	1st speed 1/min: 300
	12	†	Del. quantity cm3/: 0.003.00
electromagnet Volt:		†	10008.: (0.003.00)
Del. quantity cm3/:	(66.5083.50)	Ť	Shutoff
9th speed 1/min:		Ť	electromagnet volt: - KSB/AFB
Charge press. hPa:		I	valve Volt: 12
KSB/AFB	1000	I	vatve vott. 12
valve Volt:	12		Idle delivery:
Shutoff		1	ide decreery.
electromagnet Volt:	12	1	1st speed 1/min: 300
Del. quantity cm3/:	95.00100.00	1	KSB/AFB
1000s.:	(93.50101.50)	1	valve Volt: 12
10th speed 1/min:		+	Shutoff
Charge press. hPa:		+	electromagnet Volt: 12
KSB/ĀFB		+	Del. quantity cm3/: 18.0022.00
valve Volt:	12	+	1000s.: (13.5026.50)
Shutoff		+	Dispersion cm3/: 6.0
electromagnet Volt:		+	1000s.: (6.5)
Del. quantity cm3/:		+	2nd speed 1/min: 400
	(97.00105.00)	+	KSB/AFB
12th speed 1/min:		+	valve Volt: 12
Charge press. hPa:	1000	+	Shutoff
KSB/AFB	40	+	electromagnet Volt: 12
valve Volt:	12	+	Del. quantity cm3/: 0.003.00
Shutoff	42	+	1000s.: (0.003.60)
electromagnet Volt:		†	Automobile stanting fort it is a
Del. quyntity cm3/:	(105.50110.50)	+	Automatic starting fuel delivery:
18th speed 1/min:		†	1et annual 1/min. 170
Charge press. hPa:		T	1st speed 1/min: 170 KSB/AFB
KSB/AFB	_	T	
valve Volt:	12	Ι	valve Volt: 12 Shutoff
Shutoff	12	Ι	electromagnet Volt: 12
electromagnet Volt:	12	I	Del. quantity cm3/: 90.00150.00
Del. quantity cm3/:		1	1000s.: (90.00150.00)
1000s.:	(60.0066.00)	1	10000 (75.00175.007
20th speed 1/min:		+	2nd speed 1/min: 220
Charge press. hPa:		+	KSB/AFB
KSB/AFB		+	valve Volt: 12
valve Volt:	12	+	Shutoff
Shutoff		+	electromagnet Volt: 12
electromagnet Volt:		+	Del. quantity cm3/: 30.0090.00
Del. quantity cm3/:		+	1000s.: (30.0090.00)
1000s.:	(106.00118.00)	+	
		+	4th speed 1/min: 100
Mech. shutoff:		+	KSB/AFB
Mech. Abstellung:		+	valve Volt: 12
1st speed 4/2	4450	+	Shutoff
1st speed 1/min:		†	electromagnet Volt: 12
Charge press. hPa:		†	Del. quantity cm3/: 90.00150.00
Del. quantity cm3/:		†	1000s.: (90.00150.00)
10005.:	(0.003.00)	+	

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8 mm: KOT mm: 1.0...1.3 svs max. mm: 3.2 ya mm: 41.8...44.8 yb mm: 39.1...44.9

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Pump with slave plunger

Note inst. in remarks column

Test scheet

: PEN

Edition

: 13.06.94

replaces

: ISO-4113

Calibrating oil

Injection pump

: VE4/12F2050L607

Type number

: 0 460 424 106

Customer Part-No. :

Customer—specific information

Customer

: PENTA

Engine

: AD/TAMD 31 CE "DI"

Power

KW: 110

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil

return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 110

Opening

bar: 250.00...253.00 Pressure

Perforated plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00

x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke mm: -

(from BDC): -

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 1600

Charge press. hPa: 1000 Setting value mm: 2.60...2.80

Supply-pump pressure

Speed

1/min: 1600

Charge press hPa: 1000

Setting value bar: 6.70...7.30

Full-load del. with charge press.:

1/min: 1800

Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 77.50...78.50 Dispersion cm3/: 5.0

1000s.: (5.0)

Full-load del. w/out charge press.:

Speed

1/min: 600

Del. quantity cm3/ 1000s.: 43.50...44.50

Low-idle speed regulation

Speed

1/min: 400

Del. quantity cm3/

1000s.: 12.00...16.00

Del. quantity cm3/: 6.0

1000s.: (6.0)

Full-load speed regulation

Speed

1/min: 2250

Charge press hPa: 1000 Det. quantity cm3/ 1000S.: 28.00...32.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 45.00...95.00

1000S.: 45.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed Charge press

1/min: 1700 hPa: 1000

TD travel

mm: 3.00...3.60 mm: (2.60...4.00)

3rd speed Charge press

1/min: 1600

hPa: 1000

TD travel

mm: 2.60...2.80

mm: (2.00...3.40)
4th speed 1/min: 1400
Charge press hPa: 1000
TD travel mm: 0.80...1.40

mm: (0.40...1.80)

L15

+	Mech, shutoff:
Supply-pump pressure characteristic:	Mech. Abstellung:
1st speed 1/min: 2050	1st speed
Charge press. hPa: 1000	Charge press. hPa: 1000
Supply-pump +	Del. quantity cm3/: 0.003.00
pressure bar: 8.308.90	1000s.: (0.003.00)
2nd speed 1/min: 1600	
Charge press. hPa: 1000	Electr. shutoff:
Supply-pump +	4
pressure bar: 6.707.30	1st speed 1/min: 400
3rd speed 1/min: 750	Del. quantity cm3/: 0.003.00
Charge press. hPa: 1000	1000s.: (0.003.00)
Supply-pump	Shutoff
pressure bar: 4.204.80	electromagnet volt: 12
Overlow quantity at overflow valve:	Idle delivery:
1st speed 1/min: 600	1st speed 1/min: 400
Charge press. hPa: -	Del. quantity cm3/: 12.0016.00
Overflow : 88.90133.40	10005.: (9.0019.00)
quantity cm3/10s: (73.90159.40)	Dispersion cm3/: 6.0
2nd speed 1/min: 2050	1000s.: (6.0)
Charge press. hPa: 1000	2nd speed 1/min: 500
Overflow : 111.20194.60	Del. quantity cm3/: 0.003.00
quantity cm3/10s: (96.20209.60)	1000s.: (0.003.00)
Decivery quant. and breakaway char:	Automatic stanting tuol delivery
becivery-quart. and breakaway that	Automatic starting fuel delivery:
<u> </u>	1st speed 1/min: 300
1nd speed 1/min: 900 +	Del. quantity cm3/: 70.00110.00
Charge-air pressure-setting +	1000s.: (70.00110.00)
point hPa: 400	
Del. quantity cm3/: 62.0063.00	2nd speed 1/min: 500
1000s.: (59.5065.50)	Del. quantity cm3/: 20.0050.00
2nd speed 1/min: 2320 +	1000s.: (20.0050.00)
Charge press. hPa: 1000	
Del. quantity cm3/: 0.003.00	4th speed 1/min: 100
1000\$.: (0.003.00)	Del. quantity cm3/: 45.0095.00
5th speed 1/min: 2250 +	1000s.: (45.0095.00)
Charge press. hPa: 1000	
Del. quantity cm3/: 28.0032.00	Shutoff electromagnet:
1000S.: (24.0036.00)	rus in
9th speed 1/min: 2050	Cut-in
Charge press. hPa: 1000 + Del. quantity cm3/: 74.0077.00 +	min voltage : 10.0
10005.: (72.5078.50)	Rated voltage : 12.0
12th speed 1/min: 1800	Mounting and accombly dimensions.
Charge press. hPa: 1000	Mounting and assembly dimensions:
Del. quyntity cm3/: 77.5078.50	Designation
10008.: (75.5080.50)	K mm: 3.23.4
18th speed 1/min: 600	KF mm: KOT
Charge press. hPa: -	MS1 mm: 1.51.8
Del. quantity cm3/: 43.5044.50	Ya mm: 37.239.2
1000s.: (41.5046.50)	Yb mm: 49.557.7
20th speed 1/min: 750	
Charge press. hPa: 1000	Remarks:
Del. quantity cm3/: 73.5078.50	:
1000\$.: (71.0081.00)	:
†	Ya = Distance between VE flange and

speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Pump with slave plunger

Note inst. in remarks column

Test scheet

Edition : 13.06.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1200R265-2

Type number : D 460 426 183

Customer Part-No. :

Customer-specific information

Customer : SNF

: WD 612.02/04 Engine

Power KW: 100

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 800

Setting value mm: 1.50...1.90

Supply-pump pressure

1/min: 800 Speed

Setting value bar: 5.50...6.10

Full-load del. w/out charge press.:

1/min: 1000 Speed

Del. quantity cm3/

1000s.: 90.50...91.50

cm3/: 3.5 Dispersion

1000s.: (3.5)

Low-idle speed regulation

1/min: 300

Del. quantity cm3/

1000s.: 16.00...20.00

Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

1/min: 1300 Speed

Del. quantity cm3/

1000s.: 21.00...27.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 90.00...140.00 mind 1000s.: 90.00

Inspection-pump test specifications Test specifications in parentheses

Timing device characteristic:

2nd speed 1/min: 1200

TD travel mm: 3.10...3.90

mm: (2.80...4.20)

3rd speed 1/min: 800

TD travel

mm: 1.50...1.90 mm: (1.00...2.40)

1/min: 600 5th speed

TD travel mm: 0.20...1.00

mm: (0.00...1.30)

Supply-pump pressure characteristic:

1st speed 1/min: 1200

Supply-pump

bar: 7.20...7.80 pressure

1/min: 800 2nd speed

Supply-pump

pressure bar: 5.50...6.10

1/min: 600 3rd speed

Supply-pump

bar: 4.50...5.10 pressure

Overlow quantity at overflow valve:

1st speed 1/min: 500 1/min: 100 4th speed : 41.70...86.10 Overflow Del. quantity cm3/: 90.00...140.00 quantity cm3/10s: (26.70...101.10) 1000s.: -2nd speed 1/min: 1200 Overflow : 55.60...139.00 Shutoff electromagnet: cm3/10s: (40.60...154.00) quantity Cut-in Delivery-quant, and breakaway char.: min voltage Rated voltage 1rid speed 1/min: 1380 Mounting and assembly dimensions: Del. quantity cm3/: 0.00...3.00 1000s.: -Designation 1/min: 1300 2nd speed mm: 3.2...3.4 Del. quantity cm3/: 21.00...27.00 KF mm: 5.6...6.0 1000S.: (18.CO...30.00) 3rd speed 1/min: 1250 Del. quantity cm3/: 60.00...100.00 1000S.: mm 1.3...1.5 N'S SVS max. mm: 5.4 mm: 37.2...39.2 Ya mm: 53.8...62.2 Yb 1/min: 1200 4th speed Del. quantity cm3/: 87.50...90.50 Remarks: 1000s.: (86.70...91.30) 1/min: 1000 5th speed Del. quantity cm3/: 90.50...91.50 1000s.: (88.70...93.30) Ya = Distance between VE flange and speed-control lever in idle 6th speed 1/min: 500 position Del. quantity cm3/: £8.00...90.00 1000S.: (87.00...92.00) Measurement point = edge of control lever on drive end Mech. shutoff: Mech. Abstellung: Yb = Distance between VE flange and speed-control lever in rated speed 1st speed 1/min: 1200 position Del. quantity cm3/: 0.00...3.00 Measurement point = edge of control 1000s.: (0.00...3.00) lever on distributor-head end Idle delivery: 1st speed 1/min: 300
Del. quantity cm3/: 16.0...20.0
1000S.: (14.0...22.0)
Dispersion cm3/: 3.5 1000s.: (3.5) 1/min: 350 2nd speed Del. quantity cm3/: 4.50...10.50 1000S.: (3.50...11.50) 1/min: 400 3rd speed Del. quantity cm3/: 0.00...3.00 1000s.: -Automatic starting fuel delivery: 1/min: 280 1st speed Del. quantity cm3/: 65.00...85.00 1000s.: -2nd speed 1/min: 150 Del. quantity cm3/: 100.0...150.0 1000s.: -

Note inst. in remarks column

Test scheet

Edition : 13.06.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1200L385-4 Type number : 0 460 426 214

Customer Part-No. :

Customer-specific information

Customer : MAXION

Engine : T 6.354

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

Pressure bar: 172.00...175.00

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.5

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 700

Setting value mm: 1.70...2.10

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 700

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 700

Del. quantity cm3/ 1000s.: 101.5...102.5

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion 1000s.: (4.5)

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1210

Del. quantity cm3/

1000s.: 82.00...88.00

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 95.00...135.00

1000s.: 95.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed

1/min: 1050 mm: 2.90...3.70 TD travel

mm: (2.60,..4.00)

electromagnet Volt: 12 2nd speed 1/min: 700

TD travel mm: 1.70...2.10 mm: (1.20...2.60)

Shutoff

electromagnet Volt: 12 1/min: 500 3rd speed

mm: 0.40...1.20 mm: (0.30...1.30) TD travel

Del. quantity cm3/: 92.00...98.00 1000s.: (90.00...100.00) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Mech. shutoff: 1st speed 1/min: 1050 Electr. shutoff: Supply-pump pressure bar: 6.90...7.50 1st speed 1/min: 300 Shutoff Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 12 2nd speed 1/min: 700 1000s.: -Shutoff Supply-pump electromagnet volt: pressure bar: 5.70...6.30 Shutoff Idle delivery: electromagnet Volt: 12 3rd speed 1/min: 500 1st speed 1/min: 300 Supply-pump Shutoff pressure bar: 4.90...5.50 Shutoff electromagnet Volt: 12 1000s.: (5.0) 1/min: 250 Overlow quantity at overflow valve: 2nd speed 1st speed 1/min: 500 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 21.0...29.0 1000s.: (19.0...31.U) 3rd speed 1/min: 400 electromagnet Volt: 12 : 41.70...86.10 Overflow cm3/10s: (26.70...101.10) 1/min: 1050 quantity 2nd speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 12 : 55.60...139.00 Overflow 1000s.: quantity cm3/10s: (40.60...154.00) Automatic starting fuel delivery: Delivery-quant. and breakaway char.: 1st speed 1/min: 210 Shutoff 1/min: 1210 1nd speed electromagnet Volt: 12 Shutoff Del. quantity cm3/: 45.00...85.00 electromagnet Volt: 12 Del. quantity cm3/: 28.0...52.00 1000s.: -1000s.: -2nd speed 1/min: 100 2nd speed 1/min: 1210 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity_cm3/: 82.00...88.00 Del. quantity cm3/: 95.0...135.0 1000s.: -1000s.: (79.00...91.00) 1/min: 1050 3rd speed Shutoff electromagnet: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 111.0...115.00 1000s.: (99.50...116.50) Cut-in min voltage : 10.0 Rated voltage : 12.0 4th speed 1/min: 700 Shutoff Mounting and assembly dimensions: electromagnet Volt: 12 Del. quantity cm3/: 101.5...102.5 KF mm: 5.0...5.4 1000s.: (99.0...105.0) mm: 0.8...1.2 MS 1/min: 500 mm: 29.0...31.0 5th speed Ya Shutoff mm: 59.0...67.0

electromagnet Volt: 12

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

7b = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet

: 13.06.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1300R596 Type number : 0 460 426 236

Customer Part-No. :

Customer-specific information Customer : PERKINS

Engine : 1006 E.6

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

calibrating nozzle-holder

assembly : 1 688 901 027

Opening

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 688 901 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000

Setting value mm: 1.30...1.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900

Setting value bar: 6.3...6.9

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 300

Del. quantity cm3/

1000s.: 42.00...43.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/ 1000S.: 10.5...11.50

shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1525

Del. quantity cm3/

1000s.: 31.0...35.0

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 90.00...150.00

1000s.: 90.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing device characteristic:

1st speed 1/min: 1300

mm: 3.0...3.6 TD travel

mm: (2.6...4.0)

electromagnet Volt: 12
2nd speed 1/min: 1100
TD travel mm: 2.00...2.60

mm: (1.60...3.00)

Shutoff

electromagnet Volt: 12 1/min: 1000 3rd speed

TD travel mm:	1.301.50	+	Shutoff
	(0.702.10)	+	electromagnet Volt: 12
Shutoff	40	+	Del. quantity cm3/: 60.564.5
electromagnet Volt:		+	1000s.: (59.066.0)
4th speed 1/min:		+	5th speed 1/min: 700
	0.100.70	+	Shutoff
	(0.001.10)	+	electromagnet Volt: 12
Shutoff		+	Del. quantity cm3/: 57.558.5
electromagnet Volt:	12	+	1000s.: (55.061.0)
		+	6th speed 1/min: 500
Supply-pump pressure	e characteristic:	+	Shutoff
		+	electromagnet Volt: 12
1st speed 1/min:	1300	+	Del. quantity cm3/: 49.053.0
Supply-pump		1	10008.: (47.554.5)
pressure bar:	7.808.40	1	7th speed 1/min: 300
Shutoff		1	Shutoff
electromagnet Volt:	12	1	electromagnet Volt: 12
2nd speed 1/min:		Ι	Del. quantity cm3/: 42.043.0
Supply-pump	700	T	1000s.: (38.546.5)
pressure bar:	6.306.90	T	(0005.1 (30.3.1.40.3)
Shutoff	0.300.90	T	March about off.
	10	Ť	Mech. shutoff:
electromagnet Volt:	12 E00	T	mi - A. J.A. CC
3rd speed 1/min:	500	†	Electr. shutoff:
Supply-pump	/ /0 5 00	+	
	4.605.20	+	1st speed 1/min: 375
Shutoff		+	Del. quantity cm3/: 0.003.00
electromagnet Volt:	12	+	1000s.: (0.003.00)
		+	Shutoff
Overlow quantity at	overflow valve:	+	electromagnet volt: -
		+	-
1st speed 1/min:	300	+	Idle delivery:
Shutoff		+	•
electromagnet Volt:	12	+	1st speed 1/min: 375
	75.00119.40	1	Shutoff
quantity cm3/10s:		1	electromagnet Volt: 12
2nd speed 1/min:		1	Del. quantity cm3/: 10.511.5
Shutoff		1	1000s.: (6.0016.00)
electromagnet Volt:	12	1	Dispersion cm3/: 5.0
	97.30180.70	1	1000s.: (5.0)
quantity cm3/10s:	(82 30 195 70)	1	2nd speed 1/min: 450
quality 6115/103.	(02.50175.107	Ι	Shutoff
Delivery-quant. and	brooksusy chan	T	
beenvery quarte, and	Dieakaway Chai	T	electromagnet Volt: 12
		Ť	Del. quantity cm3/: 0.003.00
and annual almini	1400	Ť	1000s.: (0.003.00)
1nd speed 1/min:	1000	†	
Shutoff	42	†	Automatic starting fuel delivery:
electromagnet Volt:		†	4
Del. quantity cm3/:		+	1st speed 1/min: 250
1000s.:		+	Shutoff
2nd speed 1/min:	1525	+	electromagnet Volt: 12
Shutoff		+	Del. quantity_cm3/: 15.0045.00
electromagnet Volt:	12	+	1000s.: -
Del. quantity cm3/:	31.035.0	+	
1000S.:	(25.041.0)	+	2nd speed 1/min: 100
3rd speed 1/min:	1450	+	Shutoff
Shutoff		+	electromagnet Volt: 12
electromagnet Volt:	12	+	Del. quantity cm3/: 90.0150.0
Del. quantity cm3/:		+	10005.: -
1000s.:		1	,
4th speed 1/min:		1	Shutoff electromagnet:
•			

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8 KF mm: KOT MS mm: 1.0...1.4 Ya mm: 31.5...33.5 Yb mm: 54.3...62.6

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : PFR Edition : 13.06.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1300R240-3 Type number : 0 460 426 239

Customer Part-No. :

Customer-specific information Customer : PERKINS

Engine : PHASER 180 TI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer: 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

Pressure bar: 172.00...175.00

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.25

(from BDC): +-0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000 Charge press. hPa: 1000

Setting value mm: 0.40...1.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000 Charge press hPa: 1000 Setting value bar: 6.10...6.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 700 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 98,50...99.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/ 1000s.: 86.50...87.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 300

Del. quantity cm3/

1000s.: 16.5...20.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1460 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 47.00...53.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 120.0...160.0

mind 1000s.: 120.0

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device charac	cteristic:	+	Charge-air pressure-setting	
1st speed 1/min:	1700	†	point hPa: 400	
	1000	T	Shutoff	
	2.22.6	Ţ	electromagnet Volt: 12	iλ
	(1.73.1)	T	Del. quantity cm3/: 94.0095.0 1000s.: (91.0098.	יחחי
electromagnet Volt:		T		UU
2nd speed 1/min:	1100	T		
	1000	T	Charge press. hPa: 1000 Shutoff	
	1.101.90	T		
	(0.80,2.20)	Ι	electromagnet Volt: 12 Del. quantity cm3/: 0.007.00	
Shutoff	(0.002.20)	T	10005.: (0.007.00	
electromagnet Volt:	12	I	3rd speed 1/min: 1450	,
3rd speed 1/min:	1000	Ι	Charge press. hPa: 1000	
Charge press hPa:	1000	Ι	Shutoff	
TD travel mn:	0.40 1.20	I	electromagnet Volt: 12	
mm.	(0.101.50)	Ι	Del. quantity cm3/: 47.0053.0	Ω
Shutoff	(0.101.50)	Ι	10005.: (44.0056.	ט יחח
electromagnet Volt:	12	Ι	5th speed 1/min: 1300	007
eteoti anagnet vott.	16	Ι	Charge press. hPa: 1000	
Supply-pump pressure	e characteristic:	I	Shutoff	
outper, part proson	o onar dotter ration.	I	electromagnet Volt: 12	
1st speed 1/min:	500	1	Del. quantity cm3/: 95.0098.0	Ω
Charge press. hPa:	1000	1	1000s.: (93.0100.	n)
Supply-pump		1	6th speed 1/min: 700	0,
pressure bar:	3.904.50	1	Charge press. hPa: -	
Shutoff		+	Shutoff	
electromagnet Volt:	12	1	electromagnet Volt: 12	
2nd speed 1/min:	1000	1	Del. quantity cm3/: 86.587.5	
Charge press. hPa:		+	1000\$.: (84.090.0)
Supply-pump		+	7th speed 1/min: 700	•
pressure bar:	6.106.70	+	Charge press. hPa: 1000	
Shutoff		+	Shutoff	
electromagnet Volt:	12	+	electromagnet Volt: 12	
3rd speed 1/min:	1300	+	Del. quantity cm3/: 98.599.5	
Charge press. hPa:	1000	+	1000s.: (96.0102.	0)
Supply-pump		+		
•	7.307.90	+	Mech. shutoff:	
Shutoff		+	Mech. Abstellung:	
electromagnet Volt:	12	+		
	<i>e</i> .	+	1st speed 1/min: 1300	
Overlow quantity at	overflow valve:	+	Charge press. hPa: -	
1-4	500	Ť	Del. quantity cm3/: 0.003.00	
1st speed 1/min:		†	1000s.: (0.003.00)
Charge press. hPa: Shutoff	1000	†	Shutoff	
electromagnet Volt:	12	T	electromagnet volt: 12	
Overflow :	41.7086.10	T	Electr. shutoff:	
quantity cm3/10s:		T	Electr. Shutoit:	
2nd speed 1/min:		T	1st speed 1/min: 300	
Charge press. hPa:		Ι	Charge press. hPa: -	
Shutoff	1000	Ι	Del. quantity cm3/: 0.003.00	
electromagnet Volt:	12	I	1000s.: (0.003.00)
Overflow :	55.60139.00	1	Shutoff	•
quantity cm3/10s:		1	electromagnet volt: -	
-1		+	a coot i omagnot fact.	
Delivery-quant. and	breakaway char.:	+	Idle delivery:	
•	•	+		
		+	1st speed 1/min: 300	
1nd speed 1/min:	700	+		

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 16.50...20.50 1000s.: (13.50...23.50) cm3/: 5.0 Dispersion 1000s.: (5.0) 1/min: 400 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 350 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 4.5...10.5 10005.: (2.5...12.5) Automatic starting fuel delivery: 1/min: 230 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: -2nd speed 1/min: 150 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 120.0...160.0 1000s.: -1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 120.0...160.0 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: KF mm: KOT MS1 mm: 1.0...1.3 SVS max. mm: 6.0 Ya mm: 37.2...39.2 mm: 50.4...58.6 Yb Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control Lever on drive end

Yb = Distance between VE flange and

speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet

Edition : 14.06.94

replaces

Calibrating oil : ISO-4113

Injection pump

: VE4/8F2300R598

Type number : 0 460 484 074

Customer Part-No. :

Customer-specific information

Customer

: RENAULT

Engine

: F8Q - 620

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temb.

with thermometer : 40.00...48.60 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 022

Openina |

Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 450

Start of delivery Prestroke

mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Setting value mm: 3.50...3.90

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 5.10...5.70

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250

Del. quantity cm3/ .

1000s.: 32.3...33.3

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5

1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 410

Del. quantity cm3/

1000s.: 7.5...11.5

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 500

Del. quantity cm3/

1000s.: 1.00...5.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450

Del. quantity cm3/

1000s.: 24.5...30.5

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 40.00...70.00

1000s.: 40.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1/min: 1250 Speed

Inj.-qty. cm3/

difference 1000s.: -9.0...-15.0 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1250

10-travel	- Shutott
difference mm: -1.41.6 #	- electromagnet Volt: 12
Shutoff	- Del. quantity cm3/: 0.005.00
electromagnet Volt: 12	- 1000s.: (0.005.00)
1	- 3rd speed 1/min: 2650
Inspection-pump test specifications	
	- Shutoff
Test specifications in parentheses +	electromagnet Volt: 12
+	- Del. quantity cm3/: 6.5014.50
Timing-device characteristic:	- 1000s.: (5.5015.50)
4	- 4th speed 1/min: 2450
1st speed 1/min: 2000	- Shutoff
TD travel mm: 5.76.5	electromagnet Volt: 12
mm: (5.56.7)	
	Del. quantity cm3/: 24.530.5
electromagnet Volt: 12	10008.: (23.531.5)
2nd speed 1/min: 1250	- 5th speed 1/min: 2250
TD travel mm: 3.53.9	- Shutoff
mm: (3.24.2)	electromagnet Volt: 12
Shutoff	- Del. quantity cm3/: 32.334.3
electromagnet Volt: 12	10008.: (31.035.6)
3rd speed 1/min: 600	
	- 6th speed 1/min: 2000
TD travel mm: 0.81.6	- Shutoff
mm: (0.61.8)	- electromagnet Volt: 12
Shutoff	 Del. quantity cm3/: 32.334.3
electromagnet Volt: 12	10008.: (31.035.6)
1	7th speed 1/min: 1650
Supply-pump pressure characteristic:	- Shutoff
Supply pulip pressure character istic.	
1	electromagnet Volt: 12
1st speed 1/min: 2000 +	Del. quantity cm3/: 30.133.1
Supply-pump +	1000\$.: (29.333.9)
pressure bar: 7.207.80 +	- 8th speed 1/min: 1250
Shutoff	- Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 1250	
	Del. quantity cm3/: 32.3033.30
Supply-pump +	1000s.: (30.5035.10)
pressure bar: 5.105.70	9th speed 1/min: 600
Shutoff	- Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
3rd speed 1/min: 600	Del. quantity cm3/: 31.5034.50
Supply-pump	10005.: (30.7035.30)
pressure bar: 3.303.90	(0005 (30.7035.30)
Shutoff	Mark about all.
	Mech. shutoff:
electromagnet Volt: 12	
<u> </u>	Electr. shutoff:
Overlow quantity at overflow valve:	•
4	1st speed 1/min: 410
1st speed 1/min: 600 +	Del. quantity cm3/: 0.003.00
Shutoff	1000s.: (0.003.00)
electromagnet Volt: 12	Shutoff
	electromagnet volt: -
quantity cm3/10s: (26.70101.10)	•
2nd speed 1/min: 2250 +	Damper set qty.:
Shutoff	•
electromagnet Volt: 12	LFG-setting:
Overflow : 55.60139.00	solidale con carcassa:
quantity cm3/10s: (40.60154.00)	Idle delivery:
quantity (10), (40,00, 1)4,007	Tare nerivery:
Dolivan and broadeness at an	Ant
Delivery quant. and breakaway char.:	1st speed 1/min: 410
†	Shutoff
+	electromagnet Volt: 12
2nd speed 1/min: 2950 +	- •

MO2

Del. quantity cm3/: 7.50...11.50 1000s.: (5.50...13.50) High Idle: 1/mi: 500 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...11.00 1000S.: (5.00...13.00) Residual: 1/min: 500 1.Rotacao Shutoff electromagnet Volt: 12 Del. quantity cm3/: 1.00...5.00 1000s.: (1.00...5.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1st speed 1/min: 1250 Inj.-qty. cm3/ : -7.0...-9.0 " difference 1000s.: -Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Inj.-qty. cm3/: 2.0...8.0 ' Z difference 1000s.: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 TD-travel : -1.6...-2.2 ' difference mm: -Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250 Supply pumppressure : -0.1...-0.3 " Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 310 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: -2nd speed 1/min: 210 Shutoff electromagnet Volt: 12

Del. quantity cm3/: 45.0...75.0 1000s : -4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...70.00 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 K mm: 5.4 **KF** MS mm: 1.1...1.5 mm: 32.6...36.6 mm: 67.1...79.9 Ya Remarks: Ya = Distance between VE flange and speed-control lever in idle Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Z = Absolute delivery

Pump with slave plunger

Note inst. in remarks column

Test scheet : VWW

Edition : 14.06.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE5/8F2100L525-4

Type number : 0 460 485 015

Customer Part-No. :

Customer-specific information

Customer

: 2,41 WK-SD Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil

°C return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1500 Speed

Setting value mm: 4.10...4.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500

Setting value bar: 7.10...7.70

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250

Del. quantity cm3/

1000s.: 35.0...36.0

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0

1000s.: (3.0)

Low-idle speed regulation

1/min: 415 Speed

Del. quantity cm3/

1000s.: 7.0...9.0

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0

1000s.: (3.0)

Residual-Delivery Setting

1/min: 540 Speed

Del. quantity cm3/

1000s.: 6.50...7.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2400 Speed

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...75.00

1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1500 Speed

Inj.-qty. cm3/

difference 1000s.: -6.5...-14.5 #

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1500

TD-travel 1/min: 2600 2nd speed difference mm: -1.1...-1.3 # Shutoff electromagnet Volt: 12
Del. quantity cm3/: 0.00...6.00
1000S.: (0.00...6.00)
5th speed 1/min: 2400 Shutoff electromagnet Volt: 12 Inspection-pump test specifications Test specifications in parentheses Shutoff Timing device characteristic: 2nd speed 1/min: 1790 TD travel mm: 5.90...6.70 Shutoff mm: (5.60...7.00) electromagnet Volt: 12 Del. quantity cm3/: 17.00...27.00 1000s.: (16.00...28.00) 9th speed 1/min: 2100 Shutoff electromagnet Volt: 12 1/min: 1500 3rd speed mm: 4.10...4.50 mm: (3.60...5.00) TD travel Shutoff Shutoff electromagnet Volt: 12 4th speed 1/min: 1100 mm: 1.20...2.00 TD travel Shutoff mm: (0.90...2.30) electromagnet Volt: 12 Del. quyntity cm3/: 35.0...36.0 1000s.: (33.3...37.7) 20th speed 1/min: 600 Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 31.80...34.80 1000s.: (30.30...36.30) 1st speed 1/min: 1100 Supply-pump pressure bar: 5.90...6.50 Shutoff Mech. shutoff: electromagnet Volt: 12 Mech. Abstellung: 1/min: 1500 2nd speed Supply-pump 1st speed 1/min: 2100 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.09) pressure bar: 7.10...7.70 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1790 Shutoff electromagnet volt: 12 Supply-pump pressure bar: 7.80...8.40 Electr. shutoff: Shutoff electromagnet Volt: 12 1st speed 1/min: 415 Del. quantity cm3/: 0.00...3.00 Overlow quantity at overflow valve: 1000s.: (0.00...3.00) Shutoff 1st speed 1/min: 600 electromagnet volt: -Shutoff electromagnet Volt: 12 Damper set qty.: : 41.70...83.40 Overflow quantity cm3/10s: (26.80...97.30) LFG-setting: 2nd speed 1/min: 2100 solidale con carcassa: Shutoff Idle delivery: electromagnet Volt: 12 : 55.60...152.90 Overflow 1/min: 415 1st speed cm3/10s: (40.70...167.90) quantity Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 Delivery-quant. and breakaway char.: 1000s.: (4.00...12.00)

High Idle:

1st speed 1/mi: 465

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 7.00...9.00

1000s.: (4.00...12.00)

Residual:

1.Rotacao 1/min: 540

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 6.50...7.50

1000s.: (5.00...9.00)

Load-dependent start of delivery:

Inj. -qty.dif.measurement:

1st speed 1/min: 1500

Inj.-qty. cm3/ : 0.0...3.0 ' Z

difference 1000s .: -

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1st speed 1/min: 1500

TD-travel : -1.5...-2.7 '

difference

Shutoff

electromagnet Volt: 12

SP press.—dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1500

Supply pump-

: -0.6...-1.4 1 pressure

difference bar: -

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00)

2nd speed 1/min: 380

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 17.00...37.00

1000s.: (17.00...37.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4 KF mm: 5.6...6.0

mm: 1.3...1.5 MS Ya mm: 32.8...34.8

mm: 61.5...68.5 Yb

Remarks:

Ya = Distance between VE flange and

speed-control lever in idle

Measurement point = edge of control

Lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed

position

Measurement point = edge of control

lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 \$.

Z = Absolute delivery

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

Note inst. in remarks column

Test scheet : ONA

Edition : 14.06.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/9F900R399 Type number : 0 460 494 266

Customer Part-No. :

Customer-specific information

Customer

: ONAN

Engine

: 4A 2.3 GEN.

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Openina |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness: 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 750

Setting value mm: 2.5...2.9

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 7500 Speed

Setting value bar: 2.8...3.4

Shutoff

electromagnet Volt: 12

Fuli-load del. w/out charge press.:

1/min: 850 Speed

Del. quantity cm3/

1000s.: 43.5...44.5

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0

1000s.: (3.0)

Full-load speed regulation

1/min: 900 Speed

Del. quantity cm3/

1000s.: 34.5...38.5

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 55.00...85.00

1000s.: 55.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 850 1st speed

TD travel mm: 2.7...3.5

mm: (2.4...3.8)

electromagnet Volt: 12 2nd speed 1/min: 750

TD travel mm: 2.50...2.90

mm: (2.00...3.40)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 500

mm: 1.10...1.90 TD travel

mm: (0.80...2.20)

Shutoff

electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 850

Supply-pump

pressure bar: 3.10...3.70

Shutoff

electromagnet Volt: 12 2nd speed 1/min: 750

Supply-pump

bar: 2.80...3.40 pressure

Shutoff Damper set qty.: electromagnet Volt: 12 1/min: 500 3rd speed Automatic starting fuel delivery: Supply-pump bar: 1.80...2.40 pressure 1st speed 1/min: 350 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 25.00...55.00 1000s.: -Overlow quantity at overflow valve: 1/min: 500 1st speed 2nd speed 1/min: 250 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 : 41.70...83.40 Del. quantity cm3/: 60.00...90.00 1000s.: -Overflow cm3/10s: (27.80...97.30) quantity 1/min: 850 2nd speed Shutoff 4th speed 1/min: 100 electromagnet Volt: 12 Shutoff : 41.70...133.30 Overflow electromagnet Volt: 12 cm3/10s: (26.70...148.90) Del. quantity cm3/: 55.00...85.00 quantity 1000s.: -Delivery-quant. and breakaway char.: Shutoff electromagnet: 1/min: 970 3rd speed Cut-in Shutoff min voltage : 10.0 electromagnet Volt: 12 Rated voltage : 12.0 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Mounting and assembly dimensions: 1/min: 940 4th speed Shutoff Designation electromagnet Volt: 12 Del. quantity cm3/: 0.00...7.00 1000s.: (0.00...7.00) mm: 3.2...3.4 K KF mm: 5.6...6.0 MS mm: 1.8...2.0 1/min: 900 5th speed mm: 59.0...67.0 Ya Shutoff mm: electromagnet Volt: 12 Del. quantity cm3/: 34.50...38.50 Remarks: 1000s.: (32.50...40.50) 1/min: 850 6th speed Shutoff Ya = Distance between VE flange and electromagnet Volt: 12 speed-control lever in idle Del. quantity cm3/: 43.50...44.50 position 1000s.: (42.00...46.00) 1/min: 500 Measurement point = edge of control 7th speed lever on drive end Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.50...45.50 1000s.: (42.00...46.00) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 900 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -

Note inst. in remarks column

Test scheet

: ONA

Edition

: 14.06.94

replaces

Calibrating oil : ISO-4113

Injection pump

: VE4/9F1300R315-1

Type number

: 0 460 494 268

Customer Part-No. :

Customer-specific information

Customer

: ONAN

Engine

: 4 A 2.3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil

return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening |

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00

x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke mm: -

(from BDC): -

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed

1/min: 1000

Setting value mm: 1.90...2.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000

Setting value bar: 3.30...3.90

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1000 Speed

Del. quantity cm3/ 1000s.: 39.5...40.5

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0

1000s.: (3.0)

Low-idle speed regulation

1/min: 400

Del. quantity cm3/ 1000s.: 7.50...11.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0

1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 1350

Del. quantity cm3/

1000s.: 27.00...31.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 50.00...90.00

1000s.: 50.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1300

mm: 3.10...3.90 TD travel

mm: (2.80...4.20)

Shutoff

electromagnet Volt: 12

1/min: 1000 3rd speed

mm: 1.90...2.30 TD travel

mm: (1.40...2.80)

Shutoff

electromagnet Volt: 12 4th speed 1/min: 800

mm: 0.80...1.60 TD travel

mm: (0.50...1.90)

Shutoff electromagnet Volt: 12 20th speed 1/min: 500 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.50...38.50 1000s.: (34.50...39.50) 1/min: 800 1st speed Supply-pump bar: 2.70...3.30 pressure Shutoff Mech. shutoff: electromagnet Volt: 12 2nd speed 1/min: 1000 Idle delivery: Supply-pump bar: 3.30...3.90 pressure 1/min: 400 1st speed Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Det. quantity cm3/: 7.50...11.50 1000s.: (6.00...13.00) Dispersion cm3/: 3.0 3rd speed 1/min: 1300 Supply-pump bar: 4.40...5.00 pressure 1000s.: (3.0) Shutoff 1/min: 500 electromagnet Volt: 12 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...4.00 1000S.: (0.00...4.00) Overlow quantity at overflow valve: 1/min: 500 1st speed Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: : 41.70...83.40 Overflow | cm3/10s: (26.70...98.40) quantity 1st speed 1/min: 220 2nd speed 1/min: 1000 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 50.00...80.00 : 41.70...125.10 1000s.: (50.00...80.00) cm3/10s: (26.70...125.10) quantity 1/min: 350 2nd speed Delivery-quant. and breakaway char.: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...50.00 1000s.: (20.00...50.00) 1/min: 1480 2nd speed Shutoff electromagnet Volt: 12 4th speed 1/min: 100 Del. quantity cm3/: 0.00...4.00 1000S.: (0.00...4.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.00...90.00 1000s.: (50.00...90.00) 1/min: 1370 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.00...40.00 Shutoff electromagnet: 1000s.: (10.00...40.00) 1/min: 1350 5th speed Cut-in Shutoff min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Shutoff Designation electromagnet Volt: 12 mm: 3.1...3.4 Del. quantity cm3/: 41.00...44.00 1000s.: (39.50...45.50) 12th speed 1/min: 1000 KF mm: 5.6...6.0 mm: 0.9...1.3 mm: 37.2...39.2 mm: 27.5...32.5 MS Ya Shutoff electromagnet Volt: 12

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet Edition : 14.06.94 replaces Calibrating oil : ISO-4113 : VE4/9F2300R411 Injection pump : 0 460 494 270 Type number Customer Part-No. : Customer-specific information Customer : NISSAN-MISA Engine : LD20 TEST BENCH REQUIREMENTS

Calibrating-oil return temp. with thermometer : 40.00...48.00 Electronically : 42.00...50.00 Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder : 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1200 Speed

Setting value mm: 3.30...3.70

AFB/AFB valve

Volt: 12 Shutoff electromagnet Volt: 12

Supply-pump pressure

1/min: 1200 Speed

Setting value bar: 5.10...5.70

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 2200 Del. quantity cm3/

1000s.: 32.0...33.0

11

KSB/AFB valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 350 Del. quantity cm3/ 1000s.: 7.50...11.50

KSB/AFB valve

Volt: 12 Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Residual-Delivery Setting

1/min: 500 Del. quantity cm3/

1000s.: 1.00...5.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600

Del. quantity cm3/

1000s.: 12.00...18.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 48.00...52.00

mind 1000s.: 48.00

KSB/AFB

Volt: 12 Valve

Shutoff Supply-pump electromagnet Volt: 12 bar: 8.20...8.80 pressure KSB/AFB Load-dependent start of delivery: Volt: 12 valve Inj.-qty.dif.measurement: Shutoff electromagnet Volt: 12 1/min: 900 Speed 1/min: 1800 2nd speed Inj.-qty. cm3/Supply-pump difference 1000s.: -8.6...-12.6 # pressure bar: 6.80...57.4 KSB/AFB KSE/AFB valve Volt: 12 valve Volt: 12 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 TD-travel dif.measurement 3rd speed 1/min: 1200 correttore anticipo iniezione (SV) Supply-pump 1/min: 900 1. Speed pressure bar: 5.10...5.70 TD-travel KSB/AFB difference mm: -0.7...-0.9 # valve Volt: 12 KSB/AFB Shutoff valve Volt: 12 electromagnet Volt: 12 4th speed 1/min: 900 Shuroff electromagnet Volt: 12 Supply-pump pressure bar: 4.20...4.80 Inspection pump test specifications KSB/AFB Test specifications in parentheses valve Volt: 12 Shutoff Timing-device characteristic: electromagnet Volt: 12 1st speed 1/min: 2300 Overlow quantity at overflow valve: mm: 7.70...8.50 TD travel mm: (7.60...8.60) 1st speed 1/min: 600 KSB/AFB KSB/AFB valve Volt: 12 valve Volt: 12 electromagnet Volt: 12 2nd speed 1/min: 1800 Shutoff electromagnet Volt: 12 TD travel mm: 6.00...6.80 : 41.70...83.40 Overflow mm: (5.70...7.10) quantity cm3/10s: (26.80...98.30) KSB/AFB 1/min: 2300 2nd speed valve **Volt: 12** KSB/AFB Shutoff Volt: 12 valve electromagnet Volt: 12 Shutoff 3rd speed 1/min: 1200 electromagnet Volt: 12 mm: 3.30...3.70 : 55.60...152.90 TD travel Overflow mm: (2.80...4.20) cm3/10s: (41.70...167.90) quantity KSB/AFB valve Volt: 12 Delivery-quant. and breakaway char.: Shutoff electromagnet Volt: 12 1/min: 900 4th speed 1/min: 2850 1nd speed TD travel mm: 1.50...2.30 KSB/AFB mm: (1.20...2.60) Volt: 12 valve KSB/AFB Shutoff Volt: 12 valve electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 Shutoff 1000s.; (0.00...5.00) 1/min: 2600 electromagnet Volt: 12 2nd speed Supply-pump pressure characteristic: KSB/AFB valve Volt: 12 1st speed 1/min: 2300 Shutoff

electromagnet Volt: 12

	(10.519.5)	‡	KSB/AFB valve Volt: 12	
3rd speed 1/min; KSB/AFB	2400	<u>†</u>	Electr. shutoff:	
valve Volt: Shutoff	12	+		
electromagnet Volt:	12	‡	1st speed 1/min: 350 Del. quantity cm3/: 0.00	3.00
Del. quantity cm3/:	29.537.5 (28.039.0)	<u>†</u>	1000\$.: (0.00	.3.00)
4th speed 1/min: KSB/AFB	2300	‡	electromagnet volt: - KSB/AFB	
valve Volt: Shutoff	12	<u> </u>	valve Volt: 12	
electromagnet Volt: Del. quantity cm3/: 1000s.:	12 33.835.8 (32.337.3)	†	Damper set qty.: LFG-setting:	
5th speed 1/min: KSB/AFB	2200	-	solidale con carcassa: Idle delivery:	
valve Volt: Shutoff	12	‡	1st speed 1/min: 350	
electromagnet Volt: Del. quantity cm3/:		İ	KSB/AFB valve Volt: 12	
1000s.:	(31.233.8)	Ŧ	Shutoff	
6th speed 1/min: KSB/AFB Valve Volt:		† † † †	Del. quantity cm3/: 7.51	1.5
Shutoff		Ŧ	1000s.: (5.5	15.5)
electromagnet Volt: Del. quantity cm3/:	12 32.034.0	<u> </u>	High Idle:	
1000s.: 7th speed 1/min:	(30.535.5)	+	1st speed 1/mi: 500 KSB/AFB	
KSB/AFB		Ŧ	valve Volt: 12	
valve Volt: Shutoff	12	‡	Shutoff electromagnet Volt: 12	
electromagnet Volt: Del. quantity cm3/:	31.034.0	‡	Del. quantity cm3/: 7.01 1000s.: (5.0	1.0 13.0)
8th speed 1/min: KSB/AFB	(30.035.0) 900	1	Residual:	
valve Volt: Shutoff	12	<u> </u>	1.Rotacao 1/min: 500 KSB/AFB	
electromagnet Volt: Del. quantity cm3/:		+	valve Volt: 12 Shutoff	
1000s.:	(28.433.4)	Ŧ	electromagnet Volt: 12	5 00
9th speed 1/min: KSB/AFB		‡	Del. quantity cm3/: 1.00 1000s.: (1.00	
valve Volt: Shutoff	12	‡	Load-dependent start of del	iverv:
electromagnet Volt: Del. quantity cm3/:	30.033.0	‡	Injqty.dif.measurement:	140171
1000s.:	(29.034.0)	<u> </u>	1st speed 1/min: 1250 Injqty. cm3/ : -6.5	-8 5 "
Mech. shutoff: Mech. Abstellung:		‡	difference 1000s.: - KSB/AFB	0.5
1st speed 1/min:	2300	‡	valve Volt: 12 Shutoff	
Del. quantity cm3/:		‡	electromagnet Volt: 12 2nd speed 1/min: 1250	
Shutoff electromagnet volt:		+	Injqty. cm3/: 2.08 difference 1000s.: -	.0 ' Z

KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 TD-travel : -0.4...-1.4 ' mm: difference KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250 Supply pump-: -0.1...-0.3 " pressure difference bar: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 310 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: -1/min: 210 2nd speed KSB/AFB valva Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...65.00 1000s.: -4th speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 48.00...52.00 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation mm: 3.2...3.4 KF mm: 5.6...6.0 MS mm: 1.1...1.3 mm: 3.1 SVS max. mm: 30.8...34.8 Ya mm: 68.7...79.0 Yb Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : 14.06.94 Edition

replaces

Calibrating oil : ISO-4113

: VE4/9F2150R281-1 Injection pump Type number : 0 460 494 276

Customer Part-No. :

Customer-specific information

Customer : PSA

: XUD11ATE-Y BVA Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1250 Speed Charge press. hPa: 1000 Setting value mm: 2.80...3.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250 Charge press hPa: 1000

Setting value bar: 5.00...5.60

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 61.00...62.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 42.00...43.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (2.5)

Low-idle speed regulation

1/min: 325

Del. quantity cm3/ 1000s.: 12.0...14.0

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

1/min: 550

Del. quantity cm3/

1000s.: 2.50...3.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2250 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 49.00...55.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...80.00

1000s.: 70.00 mind

Shutoff electromagnet Volt: 12	+ Overflow : 55.60139.00 + quantity cm3/10s: (40.60154.00)
Inspection-pump test specifications	+
Test specifications in parentheses	S + Delivery-quant. and breakaway char.:
Timing-device characteristic:	1nd speed 1/min: 750
2nd speed 1/min: 2000	Charge-air pressure-setting point hPa: 400
Charge press hPa: 1000	LDA-stroke mm: 7.1
TD travel mm: 6.607.20	+ Shutoff
mm: (6.207.60)	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 56.0057.00
electromagnet Volt: 12	1000\$.: (53.5059.50)
3rd speed 1/min: 1250	+ 2nd speed 1/min: 2700
Charge press hPa: 1000 TD travel mm: 2.803.00	+ Charge press. hPa: 1000 + Shutoff
mm: (2.203.60)	+ electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 5.0011.00
electromagnet Volt: 12	10005.: (4.0012.00)
4th speed 1/min: 1000	4 3rd speed 1/min: 2400
Charge press hPa: 1000	Charge press. hPa: 1000
TD travel mm: 1.301.90	+ Shutoff
mm: (0.902.30)	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 33.5040.50
electromagnet Volt: 12	+ 1000\$.: (33.0041.00)
Committee management and a house of the stat	+ 5th speed 1/min: 2250
Supply-pump pressure characteristic	
1st speed 1/min: 1000	+ Shutoff
1st speed 1/min: 1000 Charge press. hPa: 1000	+ electromagnet Volt: 12
Supply-pump	+ Del. quantity cm3/: 49.0055.00 + 1000s.: (48.0056.00)
pressure bar: 4.304.90	9th speed 1/min: 2000
Shutoff	Charge press. hPa: 1000
electromagnet Volt: 12	+ Shutoff
2nd speed 1/min: 1250	+ electromagnet Volt: 12
Charge press. hPa: 1000	+ Del. quantity cm3/: 56.0059.00
Supply-pump	1000\$.: (55.2059.80)
pressure bar: 5.005.60	† 10th speed 1/min: 1000
Shutoff	Charge press. hPa: 1000
electromagnet Volt: 12	+ Shutoff
3rd speed 1/min: 2000 Charge press. hPa: 1000	+ electromagnet Volt: 12
Supply-pump	+ Del. quantity cm3/: 60.5063.50 + 1000s.: (59.5064.50)
pressure bar: 7.107.70	11th speed 1/min: 500
Shutoff	Charge press. hPa: 1000
electromagnet Volt: 12	+ Shutoff
_	+ electromagnet Volt: 12
Overlow quantity at overflow valve:	bel. quantity cm3/: 59.062.0
	10008.: (58.063.0)
1st speed 1/min: 500	+ 12th speed 1/min: 1250
Charge press. hPa: -	+ Charge press. hPa: 1000
Shutoff	+ Shutoff
electromagnet Volt: 12 Overflow: 41.7083.40	+ electromagnet Volt: 12
quantity cm3/10s: (26.7098.40)	+ Del. quyntity cm3/: 61.062.0 + 1000S.: (59.263.8)
2nd speed 1/min: 2000	18th speed 1/min: 500
Charge press. hPa: -	+ Charge press. hPa: +
Shutoff	+ Shutoff
electromagnet Volt: 12	electromagnet Volt: 12

Del. quantity cm3/: 42.0043.00 1000s.: (40.2044.80)	† Spacing mm: 12.0
Mech. shutoff:	1st speed 1/min: 1500 Charge press. hPa: 1000
Mech. Abstellung: 1st speed 1/min: 2000	+ KSB/ĀFB - valve Volt: 3.TL - Shutoff
Charge press. hPa: 1000 Del. quantity cm3/: 0.003.00	electromagnet Volt: 12 Del. quantity cm3/: 24.5025.50
1000s.: (0.003.00) Shutoff electromagnet volt: 12	1000S.: (22.0028.00) 2nd speed 1/min: 500 Charge press. hPa: 1000
Electr. shutoff:	+ KSB/AFB + valve Volt: 4.TL
1st speed	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.521.5 1000S::-
Shutoff electromagnet volt: -	+ Automatic starting fuel delivery:
Damper set qty.:	T 2nd speed 1/min: 325 - Shutoff
LFG-setting: solidale con carcassa: Idle delivery:	electromagnet Volt: 12 Del. quantity cm3/: 37.0044.00 1000s.: (36.5044.50)
1st speed 1/min: 325 Shutoff	3rd speed 1/min: 200 Shutoff
electromagnet Volt: 12 Del. quantity cm3/: 12.0014.00 1000S.: (10.0016.00)	electromagnet Volt: 12 Del. quantity cm3/: 76.0078.00 1000s.: (74.5079.50)
2nd speed 1/min: 375 Shutoff electromagnet Volt: 12	4th speed 1/min: 100 Shutoff
Del. quantity cm3/: 5.0011.00 1000s.: (5.0011.00)	electromagnet Volt: 12 Del. quantity cm3/: 70.0080.00 1000s.: (68.0082.00)
High Idle:	Shutoff electromagnet:
1st speed 1/mi: 450 Shutoff	- Cut-in
electromagnet Volt: 12 Del. quantity cm3/: 11.0013.00 1000s.: (9.0015.00)	min voltage : 10.0 Rated voltage : 12.0
Residual:	Mounting and assembly dimensions:
1.Rotacao 1/min: 550 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.503.50 1000s.: (0.505.50)	- Designation - K mm: 3.23.4 - KF mm: 5.25.6 - MS mm: 0.91.3 - LDA stroke mm: 7.1 - Ya mm: 34.338.3 - Yb mm: 67.181.7
Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set)	Yb mm: 67.181.7 Remarks:
scarico) (ARF) gaz d'échappement-ARF)	+ Add 12 mm spacer at 3rd

part-load-quantity stop.

Add 12 mm spacer at 4th part-load-quantity stop.

Pump with slave plunger

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor—head end

Note remarks

Test sheet : MB

Edition : 22.08.94

Replaces

Test oil : ISO-4113

: 0 400 074 883 Combination no.

Injection pump

Pump designation : PES4M55C32ORS185 EP type number : 0 410 064 006

Governor

Governor design. : RSF375/1900M78 Governer no. : 0 420 021 274

Customer-spec. information Customer : MB-PKW

: OM601 D23 Engine

1st version kW : 72.0

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 469 990 351

Inlet press., bar: 1.00

Test nozzle holder

: 1 688 901 111 assembly

Opening

pressure, bar : 147...150

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 20.00...22.00

Firing order : 1-3-4-2 Phasing : **0-90-180-27**0

Tolerance $+ - ^{\circ}$: 0.00 (1.03)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 13.75...13.85

Del.quantity cm3/ : 5.9...6.0

100 s: (5.8...6.1)

cm3 : 0.3Spread

100 s: (0.35)

2nd speed rpm : 375.0 Rack travel in mm: 5.9...6.1

Del.quantity cm3/: 0.6...0.7

100 s: (0.5...1.0) Spread cm3 : 0.1

100 s: (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900 Aneroid pressure h: 1850

Del.quantity : 50.0...61.3)

cm3 : 3.00 Spread

1600 : (3.50)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8.10...8.50

Speed rpm : 2200

4th rack travel in: 2600

: 0.00...1.00 Speed rpm

SET IDLE CONTROL LEVER **POSITION**

rpm

Rack travel in mm: 1,9...2.0

LOW IDLE 1 Control lever

position degrees: 6...10

Setting point w/out bumper spring

Speed rpm -Rack travel in mm: 6.0 Testina: Speed : 250 rpm Minimum rack trave: 11.0 : 375 COM Rack travel in mm : 5.90...6.10 Speed : 900 rpm Maximum rack trave: 1.90 SET IDLE AUXILIARY SPRING Speed rpm : 500 Rack travel in mm : 4.1...4,3 : (4.0...4,4) TORQUE CONTROL Torque control curve - 1st version 1st speed : 1500 COM Rack travel in m: 13.10...13.30 rpm : 1900 2nd speed Rack travel in m: 12.50...12.70 3rd speed rpm : 900 Rack travel in m: 10.60...10.80 Aneroid/Altitude Compensator Test 1st version Setting Speed : 900 rom Pressure hPa : 1600 Rack travel mm : -0.30...-0.70 Measurement Speed 1/min: 900 1st pressure hPa : 1100 Rack travel in m: -3.10...3.30 2nd pressure hPa : 750 Rack travel in m: -4.70...5.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 rpm : 1850 Speed Del.quantity cm3/: 57.0...59.0 1000 s: (56.0...60.0) Aneroid pressure h: 1850 rpm : 1900 Speed Del.quantity cm3/: 54.8...57.2 1000 s: (53.8...58.2) Aneroid pressure h: 1100 Speed rpm : 900
Del.quantity cm3/: 39.8...41.2
1000 s: (38.7...42.3)

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 52.0...0.0 1000 s: (52.0...0.0)

Rack travel in mm : 20.10...0.00

HIGH IDLE

1st version Aneroid pressure h: 1850 Speed rpm : 2200

Rack travel in mm: 8.10...8.50 Del.quantity cm3/: 28.8...33.2 1000 s: (27.8...34.2)

LOW IDLE

Speed rpm : 375
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 6.0...7.0
1000 s: (5.5...10.1)

SETTING PNUEUMATIC FAST IDLE (ELA)

Speed rpm: 425
Rack travel in mm: 7.2...8.8
Del.quantity cm3/: 16.0...24.0

1000 s: hPa : 400

Remarks:

Vacuum

TESTING PNEUMATIC SHUTOFF DEVICE
-Control lever at idle stop.
With n = 315 1/min. and pu = 450 mbar,
control rod must move quickly to
control-rod travel = 0 mm

Start-of-delivery sensor system: adjustment and blocking with device KDEP 1077 = 16.8°...17.2° (16.7...17.3°) angular displacement of cam following start of delivery of cylinder no. 1.

Difference in start of delivery between max. and min. value = max. 1° angular displacement of cam

CORRECTION OF INJECTED-FUEL QUANTITY
-Set max. change plus/minus 0.75 mm
control-rod travel at correction
screw on ALDA pressure box.



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB

Edition : 22.08.94 Replaces : 11.01.93 Test oil : ISO-4113

Combination no. : 0 400 074 886

Injection pump

Pump designation : PES4M55C32DRS167 EP type number : 0 410 054 960

Governor

Governor design. : RSF375/2000M55-7 Governer no. : 0 420 021 268

Governer no. : U

Customer—spec. information Customer : MB-PKW

Engine : 0%601

1st version kW : 59.0

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 469 990 351

Inlet press., bar: 1.00

Test nozzle holder

assembly : 1 688 901 111

Opening |

pressure, bar : 147...150

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.00...2.10

: (1.95...2.15) Rack travel in mm : 20.00...22.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance $+ - ^{\circ} : 0.00 (1.00)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 3.8...3.9

100 s: (3.7...4.0)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 375.0

Rack travel in mm: 5.1...5.3

Del.quantity cm3/: 0.6...0.7 100 s: (0.5...1.0)

cm3 : 0.1

100 s: (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed rpm : 1000

Del.quantity : 38.0...39.0 1000 : (37.0...40.0

1000 : (37.0...40.0) cm3 : 2.50

Spread cm3 : 2.50 1000 : (3.00)

RATED SPEED

1st version

Control Lever

position degrees: 50...0

3rd rack travel in: 8.65...9.15

Speed rpm : 2200 4th rack travel in: 2550

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER

POSITION

Speed rpm : 1000

Rack travel in mm: 1,4...1,5

LOW IDLE 1

Control lever

position degrees: 12...16

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm: 5.2 Testina: Speed : 250 man Minimum rack trave: 10.2 Speed rom : 375 Rack travel in mm : 5.10...5.30 : 1000 Speed rom Maximum rack trave: 1.50 SET IDLE AUXILIARY SPRING : 450 rpm Rack travel in mm: 3,8...4,0 : (3,7...4,1) TORQUE CONTROL Torque control curve - 1st version rpm : 1000 1st speed Rack travel in m: 12.10...12.20 nd speed rpm : 1800 Rack travel in m: 11.80...12.00 2nd speed : 2000 3rd speed Rack travel in m: 11.70...11.90 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1800 Del.quantity cm3/ : 40.0...41.6 1000 s: (39.0...42.6) Spread cm3 : 2.501000 s: (3.0) : 2000 Speed rom Del.quantity cm3/: 40.0...42.0 1000 s: (39.0...43.0) Spread cm3 : 2.501000 s: (3.00) STARTING FUEL DELIVERY : 100 rpm Del.quantity cm3/: 54.0...0.0

1000 s: (54.0...0.0)

Rack travel in mm : 20.10...0.00

HIGH IDLE

1st version

Speed : 2200 rpm

Rack travel in mm : 8.65...9.15 Del.quantity cm3/: 29.0...33.0 1000 s: (28.0...34.0)

cm3 : 2.50

1000 s: (3.00)

LOW IDLE

Spread

Speed rpm

Rack travel in mm : 5.10...5.30 Del.quantity cm3/: 6.0...7.0 1000 s: (5.5...10.0)

cm3 : 1.00Spread 1000 s: (1.50)

SETTING PNUEUMATIC FAST IDLE (ELA)

Speed rpm : 425

Rack travel in mm: 6.5...8.1 Del.quantity cm3/: 12.0...20.0 1000 s: -

hPa : 400

Remarks:

Vacuum

Start-of-delivery sensor system: adjustment and blocking with device KDEP 1077 = 15.3°...15.7° (15.2...15.8°) angular displacement of cam following start of delivery of cylinder no. 1.

Difference in start of delivery between max. and min. value = max. 1° angular displacement of cam

TESTING PNEUMATIC SHUTOFF DEVICE -Control lever at idle stop. With n = 375 1/min. and pu = 450 mbar, control rod must move quickly to control-rod travel = 0 mm

Sliding sleeve pre-travel = 6.25 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB

: 22.03.94 Edition : 13.10.92 Replaces Test oil : 1SO-4113

Combination no. : 0 400 074 889

Injection pump

Pump designation : PES4M55C32ORS172 EP type number : 0 410 054 958

Governor

Governor design. : RSF375/2009M75-2 : 0 420 021 166 Governer no.

Customer-spec, information Customer : MB-PKW

: 0M601 Engine

1st version kW : 53.0

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 469 990 351

Inlet press., bar: 1.00

Test nozzle holder

: 1 688 901 111 assembly

Opening

pressure, bar : 147...150

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 1.70...1.80 Prestroke mm

: (1.65...1.85)

Rack travel in mm : 20.00...22.00 Firing order : 1-3-4-2

M25

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 3.3...3.4

100 s: (3.2...3.5)

Spread cm3 : 0.15

100 s: (0.25)

rpm : 375.0 2nd speed Rack travel in mm : 6.4...6.6 Del.quantity cm3/ : 0.6...0.7

100 s: (0.5...1.0)

cm3 : 0.1Spread

100 s: (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

: 33.0...34.0 Del.quantity 1000 : (32.0...35.0)

: 1.50 Spread cm3

1000 : (2.50)

RATED SPEED

1st version Control lever

position degrees: 50...0 3rd rack travel in: 8.20...8.60

Speed rpm : 2500 4th rack travel in: 2950

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER

POSITION

rpm

Rack travel in mm: 1,4...1,5

LOW IDLE 1

Control lever

position degrees: 12...16

Setting point w/out bumper spring

rpm : 375 Speed

Rack travel in mm: 6.4 Testina: STARTING FUEL DELIVERY Speed : 250 rom Minimum rack trave: 11.0 : 375 Speed rpm Speed rpm : 100 Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 52.0...0.0 Rack travel in mm: 2.5 1000 s: (52.0...0.0) : 620...720 Speed COM Rack travel in mm : 20.10...0.00 Speed COM : 900 Maximum rack trave: 1.50 HIGH IDLE SET IDLE AUXILIARY SPRING 1st version Aneroid pressure h: 1100 Speed nom : 450 Rack travel in mm : 4,8...5,0 Speed rpm : 2500 : (4,7...5,1) Rack travel in mm : 8.20...8.60 Del.quantity cm3/: 18.0...22.0 TORQUE CONTROL 1000 s: (17.0...23.0) Torque control curve - 1st version cm3 : 2.50 Spread 1st speed : 900 rpm 1000 s: (3.00) Rack travel in m: 12.30...12.40 2nd speed : 1400 nch LOW IDLE Rack travel in m: 11.95...12.15 npm : 2300 3rd speed Speed rpm : 375 Rack travel in mm : 6.40...6.60 Rack travel in m: 11.30...11.50 Del.quantity cm3/: 6.0...7.0 1000 s: (5.5...10.0) Arieroid/Altitude Compensator Test Spread cm3 : 1.001000 s: (2.50) 1st version SETTING PNUEUMATIC FAST IDLE Setting (ELA) Speed man : 900 Pressure hPa : 950 Rack travel mm : 0.00...0.20 Speed rpm : 425 Rack travel in mm : 8.1...9.7 Del.quantity cm3/: 12.0...20.0 1000 s: -Measurement Speed 1/min: 900 Vacuum hPa : 400 1st pressure hPa : 900 Rack travel in m: 0.50...0.70 Remarks: 2nd pressure hPa : 750 : ARD 900 1/MIN Rack travel in m: 1.80...2.20 : RW=1.55...1.85 MM : FM=6.5...8.5 FUEL DELIVERY CHARACTERISTICS Sliding sleeve pre-travel = 6.5 mm 1st version Start-of-delivery sensor system: adjustment and blocking with device KDEP 1077 = 16.8°...17.2° (16.7...17.3°) angular displacement of Aneroid pressure h: 1100 Speed rpm : 1400 Del.quantity cm3/ : 33.0...34.6 1000 s: (32.0...35.6) cam following start of delivery of cm3 : 2.50 Spread cylinder no. 1. 1000 s: (3.0) Aneroid pressure h: 1100 Difference in start of delivery between Speed rpm : 2300 Del.quantity cm3/: 34.0...36.0 1000 s: (33.0...37.0) max. and min. value = max. 1° angular displacement of cam cm3 : 2.50 1000 s: (3.00) Spread CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position 49°, max. 0.2 mm control-rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min. Control-lever position 46.5°, control-rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB Edition : 22.08.94 : 22.03.91 Replaces Test oil : ISO-4113 : 0 400 074 896 Combination no. Injection pump Pump designation : PES4M55C320RS104-1 EP type number : 0 410 054 963 Governor Governor design. : RSF375/2200M21 : 0 420 021 148 Governer no. Customer-spec, information Customer : MB-NF7 Engine : 0M616 2.4L ADA 1st version kW : 55.0 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 012 Inlet press., bar: 1.00 Test nozzle holder : 1 688 901 111 assembly Opening pressure, bar : 147...150 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 1.70...1.80 Prestroke mm

: (1.65...1.85)

: 1-3-4-2

Rack travel in mm : 20.00...0.00

Phasing : 0-90-180-270 Tolerance + - ° : 0.00 (1.00)BASIC SETTING 1st speed rpm: 1000 Rack travel in mm : 12.60...12.70 Del.quantity cm3/: 3.7...3.8 100 s: (3.5...3.9) Spread cm3 : 0.2100 s: (0.3) 2nd speed rpm : 375.0Rack travel in mm : 6.1...6.3 Del.quantity cm3/ : 0.7...0.8 100 s: (0.65...1.0) Spread cm3 : 0.1100 s: (0.1) FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000 Aneroid pressure h: 1100 : 37.0...38.0 Del.quantity 1000 : (36.0...39.0) Spread cm3 : 2.50 1000 : (3.00)RATED SPEED 1st version Control lever position degrees: 50...0 3rd rack travel in: 8.20...8.60 Speed rpm : 2350 4th rack travel in: 2950 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 8...12 Setting point w/out bumper spring Speed rpm : 375 Rack travel in mm : 6.1 Testing: Speed : 250 rpm Minimum rack trave: 10.00 : 375 rom Rack travel in mm : 6.10...6.30

Firing order

Rack travel in mm : 2.00 Speed rpm : 730...830 Speed : 1000 תמיו Maximum rack trave: 1.50

SET IDLE AUXILIARY SPRING Speed rpm : 450

Rack travel in mm : 5.10...5.30 : (5.00...5.40)

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1000 1st speed

Rack travel in m: 12.60...12.70

rpm : 1700 2nd speed

Rack travel in m: 12.20...12.40

3rd speed rpm : 2150

Rack travel in m: 11.80...12.00

Aneroid/Altitude Compensator Test

1st version Settina

Speed rom : 1000 Pressure hPa : 950

Measurement

1/min: 1000 Speed

1st pressure hPa : 900

Rack travel in m: 0.50...0.70

2nd pressure hPa : 750

Rack travel in m: 1.80...2.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100

Speed rpm: 1700 Del.quantity cm3/: 37.5...39.1 1000 s: (36.5...40.1)

cm3 : 2.50 Spread

1000 s: (3.)

Aneroid pressure h: 1100 Speed rpm : 2150

Del.quantity cm3/: 37.3...39.3

1000 s: (36.3...40.3)

Spread cm3 : 2.50

1000 s: (3.00)

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/ : 52.0...0.0

1000 s: (52.0...0.0)

N01

Rack travel in mm : 20.10...0.00

HIGH IDLE

1st version

rpm : 2350 Speed

Rack travel in mm: 8.20...8.60 Del.quantity cm3/: 20.0...24.0 1000 s: (19.0...25.0)

cm3 : 2.50 Spread

1000 s: (3.00)

LOW IDLE

Speed rpm : 375

Rack travel in mm : 6.10...6.30

Del.quantity cm3/: 7.0...8.0 1000 s: (6.5...10.0) Spread cm3 : 1.00

1000 s: (1.50)

Remarks:

Sliding sleeve pre-travel = 6.25 mm

TESTING PNEUMATIC SHUTOFF DEVICE -Control lever at idle stop. With n = 375 1/min. and pu = 450 mbar. control rod must move quickly to control-rod travel = 0 mm

CHECKING THE IDLE-SPEED AUXILIARY

SPRING CUTOFF

-Control-lever position 49°, max. 0.2 mm control-rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min. Control-lever position 46.5°, control-rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : 22.08.94 : 03.07.89 Edition

Replaces

: ISO-4113 Test oil

Combination ro. : 0 400 074 897

Injection pump

Pump designation : PES4M55C32ORS172 EP type number : 0 410 054 958

Governor

Governor design. : RSF360/2300M60-25

Governer no. : 0 420 021 132

Customer-spec. information Customer : MB-PKW

: 0M601-Abql. MJ90 Engine

1st version kW : 53.0

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 469 990 351

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 1.70...1.80

: (1.65...1.85)

Rack travel in mm : 20.00...22.00 Firing order : 1-3-4-2

Time to cyl. no. : 1

BASIC SETTING

Tolerance + - °

Phasina

1st speed rpm : 1000

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 3.2...3.3

100 s: (3.1...3.4)

: 0-90-180-270

: 0.00 (1.00)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 335.0Rack travel in mm : 6.5...6.7 Del.quantity cm3/ : 0.5...0.6

100 s: (0.4...0.9) Spread cm3 : 0.1

100 s: (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1100

Del.quantity : 32.0...33.0 1000 : (31.0...34.0)

: 2.50 cm3

Spread 1000 : (3.00)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8.20...8.60 : 2500 Speed

rpm 4th rack travel in: 2950

: 0.00...1.00 Speed rpm

SET IDLE CONTROL LEVER

POSITION

: 1000 rpm

Rack travel in mm : 1.40...1.50

LOW IDLE 1

Control lever

position degrees: 12...16

Setting point w/out bumper spring

NO2

Speed rpm : 335 cm3 : 2.50 Spread Rack travel in mm : 6.6 1000 s: (3.00) Testina: Speed rpm : 250 STARTING FUEL DELIVERY Minimum rack trave: 9.00 rpm : 335 Speed Rack travel in mm : 6.50...6.70 rpm : 100 Rack travel in mm: 2.50 Del.quantity cm3/: 52.0...0.0 1000 s: (52.0...0.0) Speed rom : 630...730 Speed rpm : 1000 Rack travel in mm : 20.10...0.00 Maximum rack trave: 1.50 HIGH IDLE SET IDLE AUXILIARY SPRING rpm : 400 Speed 1st version Rack travel in mm : 5.20...5.40 Aneroid pressure to: 1100 : (5.10...5.50) rpm : 2500 Speed Rack travel in mm : 8.20...8.60 Del.quantity cm3/: 17.0...21.0 TORQUE CONTROL Torque control curve - 1st version 1000 s: (16.0...22.0) rpm : 1000 1st speed Spread cm3 : 2.50 Rack travel in m: 12.30...12.40 1000 s: (3.00) rpm : 1800 2nd speed Rack travel in m: 11.70...11.90 LOW IDLE 3rd speed rpm : 2200 Rack travel in m: 11.10...11.30 Speed rpm : 335 Rack travel in mm : 6.50...6.70 Aneroid/Altitude Del.quantity cm3/ : 5.0...6.0 Compensator Test 1000 s: (4.5...9.0) cm3 : 1.00 Spread 1000 s: (1.50) 1st version Settina SEITING/TESTING ELECTRONIC IDLE Speed CDM : 1000 REGULATION (ELR) Pressure hPa : 950 Rack travel mm : 0.00...0.20 Control lever at idle stop Speed rpm : 360 Rack travel in mm : 13.00...14.40 Measurement 1/min: 1000 Speed Del.quantity cm3/: 29.00...37.00 1st pressure hPa : 900 1000 s: -Rack travel in m: 0.50...0.70 Current A : 1.8 2nd pressure hPa : 750 Rack travel in m: 1.80...2.20 Control lever at full-load stop Speed rpm : 2950 FUEL DELIVERY CHARACTERISTICS Rack travel in mm : 0.00...1.00 Current short-duration A: 3.0 1st version Starting test Aneroid pressure h: 1100 Speed rpm : 1800 Del.quantity cm3/: 34.5...36.1 1000 s: (33.5...37.1) Speed rpm : 100 Del.quantity cm3/:-1000 s: min. 1.8 A Spread cm3 : 2.50Remarks: 1000 s: (3.0) Aneroid pressure h: 1100 Start-of-delivery sensor system: adjustment and blocking with device Speed rpm : 2200 Del.quantity cm3/: 31.0...33.0 KDEP 1077 = 16.8°...17.2° (16.7...17.3°) angular displacement of 1000 s: (30.0...34.0) cam following start of delivery of

cylinder no. 1.

Difference in start of delivery between max. and min. value = max. 1° angular displacement of cam

CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position 49°, max.
0.2 mm control-rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min.
Control-lever position 46.5°, control-rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE —Control lever at idle stop. With n = 335 1/min. and pu = 450 mbar, control rod must move quickly to control—rod travel = 0 mm

Stiding sleeve pre-travel = 6.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : LIE 5,6 a10 Edition : 4.8.94 Replaces : 24.07.90 Test oil : ISO-4113 Combination no. : 0 400 874 233 K Injection pump Pump designation: PES4A95D410RS2685 EP type number : 0 410 894 996 Governor Governor design. RSV400...1000A1c2187 : 0 420 232 387 Governer no. Customer-spec. information Customer : LIEBHERR : D904 TB Engine 1st version kW : 74.0 Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening . pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80 : (2.65...2.85) Rack travel in mm : 9.00...12.00 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance $+ - ^{\circ}$: 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm: 980

Rack travel in mm : 10.20...10.30

Del.quantity cm3/ : 9.1...9.3

100 s: (8.9...9.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 6.3...6.5 Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 2.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1000

Del.quantity : 91.5...93.5 1000 : (89.5...95.5)

Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 91...99 Testina: 1st rack travel in: 9.20 rpm : 1020...1040 Speed 2nd rack travel in: 4.00 rpm : 1030...1060 Speed 3rd rack travel in: 4.00 rpm : 1060...1090 Speed 4th rack travel in: 1220 Speed nom : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 65...73 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm: 5.9 Testina: rpm : 100 Speed Minimum rack trave: 19.50 Speed rpm: 400 Rack travel in mm: 6.30...6.50 Rack travel in mm: 2.00 rpm : 520...580 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 980 Rack travel in m: 10.20...10.30 2nd speed rpm : 500 Rack travel in m: 10.50...10.60 3rd speed rpm : 720 Rack travel in m: 10.30...10.50 FUEL DELIVERY CHARACTERISTICS 1st version : 500 Speed rpm Del.quantity cm3/: 82.5...85.5 1000 s: (80.0...88.0) Speed rpm : 700 Del.quantity cm3/: 91.0...94.0 1000 s: (88.5...96.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.20 rpm : 1020...1040 Speed STARTING FUEL DELIVERY

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 7,3 d 1 Edition : 8.7.94 Replaces : 16.02.94 Test oil : ISO-4113 : 0 403 456 116 Combination no. Injection pump Pump designation : PES6MW100/321RS1215 EP type number : 0 413 406 205 Governor Governor design. : RQ250/1200MW84-8 : 0 420 082 063 Governer no. Customer-spec. information Customer : MAN Engine : D 0826 LF 04 : 199.0 1st version kW Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle nolder : 0 681 343 009 assembly **Opening** pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.5...3.6 Prestroke mm : (3.3.45...3.65) Rack travel in mm: 9.0...12.0

Firing order : 1-5-3-6-2-Phasing 0-60-120-180-240-300 Tolerance $+ - \circ : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1000 Rack travel in mm: 13.60...13.70 Del.quantity cm3/: 16.7...16.9 100 s: (16.4...17.2) Spread cm3 : 0.4100 s: (0.7) 2rd speed rpm : 250.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 2.1...2.5 100 s: (1.85...2.75) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 13209.3...9.7 travel mm 2nd speed rpm : 1255 travel mm : 6.5...6.7 3rd speed : 360 rpm travel mm : 3.9...4.5 4th speed : 250 rpm travel mm : 1.6...2.0 GUIDE SLEEVE POSITION Control-Lever position Degree: 108...110 Speed rpm : 600 Rack travel in mm : 19.2...20.8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Speed Aneroid pressure h: 1200
Del quantity : 167.5...169.5 1000 : (164.5...172.5) : 4.00 Spread cm3 1000 : (7.50)

Spread cm3 : 4.00RATED SPEED 1000 s: (7.5) Aneroid pressure h: 1200 1st version Speed rpm : 600 Del.quantity cm3/ : 174.0...178.0 Control Lever position degrees: 91...99 1000 s: (171.0...181.0) Spread cm3 : 6.00Setting point: 1000 s: (9.00) : 600 Speed rpm Aneroid pressure h: 1200 Rack travel in mm : 20.0 rpm : 1200 Del.quantity cm3/: 163.0...167.0 1000 s: (160.0...170.0) Testing: 1st rack travel in: 12.6 Aneroid pressure h: -Speed rpm: 500
Del.quantity cm3/: 77.0...79.0
1000 s: (75.0...81.0) rpm : 1245...1260 Speed 2nd rack travel in: 4.00 Speed rpm: : 1340...1370 4th rack travel in: 1450 rpm : 0.00...1.00 Speed **BREAKAWAY** LOW IDLE 1 Control lever 1st vension position degrees: 67...75 1mm rack travel less than Setting point w/out bumper spring rpm : 250 full load rack tr: 12.6 Rack travel in mm: 5.6 rpm : 1245...1260 Speed Testina: STARYING FUEL DELIVERY Speed rpm : 150 Minimum rack trave: 7.5 rpm : 250 Speed rpm : 100 Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 70.0...90.0 1000 s: (67.0...93.0) Aneroid/Altitude Compensator Test LOW IDLE Speed rpm : 250
Rack travel in mm : 5.5...5.7 1st version Setting Del.quantity cm3/: 21.0...25.0 Speed : 500 rpm 1000 s: (18.5...27.5) hPa : 1200 Pressure cm3 : 3.50Spread Rack travel mm : 13.6...13.7 1000 s: (5.50) Measurement Remarks: 1/min: 500 Speed : MAN #3-7137 1st pressure hPa : -Rack travel in m: 9.5...9.6 2nd pressure hPa : 200 Rack travel in m: 10.0...10.1 3rd pressure hPa : 700 Rack travel in m: 12.3...12.6 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 1000 Del.quantity cm3/: 167.5...169.5 1000 s: (164.5...172.5)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a

Edition : 05.07.94 Replaces : 27.09.93 Test oil : ISO-4113

Combination no. : 9 400 083 449

Injection pump Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor Governor design.

RSV400...1100A2c2209

: 9 420 083 201 Governer no.

Customer-spec. information Customer : CUMMINS

Engine : 6 CT 8.3 L

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

N₀9

Firing order : 1-5- 3- 6- 2-

Phasing 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 3.00...4.00

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.30...10.40

Del.guantity cm3/: 9.0...9.2

100 s: (8.8...9.4)

Spread cm3 : 0.3

100 s: (0.8)

rpm : 400.0 2nd speed Rack travel in mm: 5.6...5.8

Del.quantity cm3/: 1.6...2.0

100 s: (1.4...2.3) cm3 : 0.5Spread

100 s: (0.9)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 90.0...92.0 Del.quantity

1000 : (88.0...94.0)

cm3 : 3.50Spread 1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 85...93

Testina:

1st rack travel in: 9.30

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1170...1200 Speed

4th rack travel in: 1300

rpm : 0.30...1.70 Speed

LOW IDLE 1

Control lever

position degrees: 62...70

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.2

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

rpm : 400 Speed

Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00

Speed rpm : 540...600

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.30...10.40

2nd speed rpm : 500 Rack travel in m: 10.30...10.50

5th speed rpm : 400

Rack travel in m: 10.70...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500 Del.quantity cm3/ : 75.0...79.0 1000 s: (73.0...81.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 134.0...150.0

1000 s: (131.0...153.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 16.5...20.5 1000 s: (14.0...23.0)

cm3 : 5.50 Spread

1000 s: (9.00)

Remarks:

Start-of-delivery blocking 11° after start of delivery of cylinder no. 1.

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet Edition : 17.08.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/10F2250L614 : 0 460 406 078 Type number

Customer Part-No. :

Customer-specific information

Customer

Engine : STEYER TD/LLK

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 111

Openina |

bar: 147.90...150.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1600 Charge press. hPa: 750

Setting value mm: 1.10...1.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1600 Speed Charge press hPa: 750

Setting value bar: 6.10...6.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1600 Charge press. hPa: 750

Del. quantity cm3/

1000s.: 39.50...40.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 29.0...30.0

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375 Charge press hPa: -Del. quantity cm3/

1000s.: 9.00...11.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 2500 Charge press hPa: 750

Del. quantity cm3/

1000s.: 11.00...15.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 45.00...75.00

mind 1000s.: 45.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1250

Charge press hPa:	750 +	Shutoff	
	0.301.10	electromagnet Volt: 12	
	(0.001.40)	Del. quantity cm3/: 34.035.0	_
electromagnet Volt:		1000s.: (31.537.5))
2rd speed 1/min:		2nd speed 1/min: 2650	
Charge press hPa:		Charge press. hPa: 750	
	1.101.50	Shutoff	
	(0.602.00)	electromagnet Volt: 12	
Shutoff	+	Del. quantity cm3/: 0.003.00	
electromagnet Volt:	12 +	10003.: -	
3rd speed 1/min:		3rd speed 1/min: 2500	
Charge press hPa:		Charge press. hPa: 750	
TD travel mm:		Shutoff	
	(2.503.90)	electromagnet Volt: 12	
Shutoff	1 +	Del. quantity cm3/: 11.015.0	
electromagnet Volt:	12	10003.: (9.017.0)	
0	.	4th speed 1/min: 2400	
Supply-pump pressur	e characteristic: +	Charge press. hPa: 750	
Ask as a land	1050	Shutoff	
1st speed 1/min:		electromagnet Volt: 12	
Charge press. hPa:	150 +	Del. quantity cm3/: 27.0037.0	
Supply-pump	5 20 5 20	1000s.: (26.038.0))
	5.205.80	5th speed 1/min: 2150	
Shutoff	12	Charge press. hPa: 750	
electromagnet Volt:		Shutoff	
2nd speed 1/min:		electromagnet Volt: 12	_
Charge press. hPa:	750 +	Del. quantity cm3/: 40.0042.00	
Supply-pump	†	1000s.: (38.8043.2	20)
	6.106.70	6th speed 1/min: 1600	
Shutoff	+	Charge press. hPa: 750	
electromagnet Volt:	12 +	Shutoff	
3rd speed 1/min:		electromagnet Volt: 12	
Charge press. hPa:	750 +	Del. quantity cm3/: 39.5040.50	3
Supply-pump	+	1000s.: (37.8042.2	20)
	7.508.10	7th speed 1/min: 800	
Shutoff	+ +	Charge press. hPa: 300	
electromagnet Volt:	12 +	Shutoff	
	+	electromagnet Volt: 12	
Overlow quantity at	overflow valve:	Del. quantity cm3/: 34.0035.00)
	+	1000s.: (31.5037.5	50)
1st speed 1/min:		8th speed 1/min: 500	
Charge press. hPa:	-	Charge press. hPa: 750	
Shutoff	†	Shutoff	
electromagnet Volt:		electromagnet Volt: 12	_
	41.7083.40	Del. quantity cm3/: 36.5039.50]
quantity cm3/10s:		1000\$.: (35.0041.0)O)
2nd speed 1/min:		9th speed 1/min: 500	
Charge press. hPa:	750 +	Charge press. hPa: -	
Shutoff	+	Shutoff	
electromagnet Volt:	12 +	electromagnet Volt: 12	
	55.60139.00	Del. quantity cm3/: 29.0030.00	
quantity cm3/10s:	(40.60154.00)	1000s.: (26.5032.5	50)
	+		
Delivery-quant. and	breakaway char.:	Mech. shutoff:	
	+	-1	
	+	Electr. shutoff:	
1nd speed 1/min:		4	
Charge-air pressure		1st speed 1/min: 375	
point hPa:	500 +	Charge press. hPa: -	
	· +		

Del. quantity cm3/: 0.00...3.00 1000s.: -Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 9.00...11.00 1000S.: (6.00...14.00) Automatic starting fuel delivery: 1st speed 1/min: 400 Charge press. hPa: -Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1900s.: -2nd speed 1/min: 260 Shutoff electromagnet Volt: 12 Det. quantity cm3/: 45.00...85.00 1000s.: -3rd speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...75.00 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 K KF mm: 6.2...6.6 MS mm: 1.6...2.0 mm: 8.5...10.5 mm: 69.7...88.3 Ya Yb Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed

Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

position

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : VWW

Edition : 19.08.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/10F2150L470-2 : 0 460 406 079 Type number

Customer Part-No. :

Customer-specific information

Customer

Engine : 2.4 SD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Charge press. hPa: 750

Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed Charge press hPa: 750

Setting value bar: 5.20...5.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Charge press. hPa: 750

Del. quantity cm3/ 1000s.: 41.5...42.5

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 600

Del. quantity cm3/

1000s.: 24.5...25.5

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/ 1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 2250 Charge press hPa: 750 Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...65.00

mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1250 Charge press hPa: -Inj.-qty. cm3/

difference 1000S.: -1.0...-5.0 #

Shutoff electromagnet Volt:	12	+	Shutoff	12
TD-travel dif.measur	16 noment	T	electromagnet Volt:	14 70 07 /0
correttore anticipo		T	Overflow :	
1. Speed 1/min:		T	quantity cm3/10s: 2nd speed 1/min:	
Charge press hPa:		T		
TD-travel		Ι	Charge press. hPa: Shutoff	730
difference mm:	-0.60.8 #	1	electromagnet Volt:	12
Shutoff	0.0 0.0 <i>n</i>	1	Overflow :	55 60 130 00
electromagnet Volt:	12	+	quantity cm3/10s:	
Inspection-pump test	t specifications	#	Delivery-quant. and	breakaway char.:
Test specifications	in parentheses	†		•
Timing-device charac	cteristic:	Ŧ	1nd speed 1/min:	
4	4000	+	Charge-air pressure	-setting
1st speed 1/min:		+	point hPa:	350
Charge press hPa:	750	+		5.9
	0.601.40	+	Shutoff	4.0
	(0.301.70)	+	electromagnet Volt:	12
electromagnet Volt:		+	Del. quantity cm3/:	
2nd speed 1/min:		+		(31.537.5)
Charge press hPa:		+	2nd speed 1/min:	
	2.202.60	+	Charge press. hPa:	750
	(1.703.10)	+	Shutoff	
Shutoff	40	+	electromagnet Volt:	
electromagnet Volt:	12	+	Del. quantity cm3/:	0.06.0
3rd speed 1/min:		+	1000s.:	
Charge press hPa:		+	3rd speed 1/min:	
TD travel mm:	4.004.80	+	Charge press. hPa:	750
	(3.705.10)	+	Shutoff	
Shutoff	40	+	electromagnet Volt:	12
electromagnet Volt:	12	†	Del. quantity cm3/:	
C		†		(8.0016.00)
Supply-pump pressure	e characteristic:	†	4th speed 1/min:	
1 mb mand 1 /min.	400	†	Charge press. hPa:	750
1st speed 1/min:		†	Shutoff	40
Charge press. hPa:	730	†	electromagnet Volt:	12
Supply-pump	7 70 7 00	†	Del. quantity cm3/:	19.0029.00
	3.303.90	†		(18.0030.00)
Shutoff	43	Ť	5th speed 1/min:	
electromagnet Volt: 2nd speed 1/min:		T	Charge press. hPa:	730
		T	Shutoff	42
Charge press. hPa: Supply-pump	750	T	electromagnet Volt:	
	5.205.80	T	Del. quantity cm3/:	
Shutoff	5.205.60	T		(35.4039.80)
electromagnet Volt:	12	T	6th speed 1/min:	
3rd speed 1/min:		T	Charge press. hPa:	730
		T	Shutoff	10
Charge press. hPa: Supply-pump	170	Τ	electromagnet Volt:	
	7.508.10	T	Del. quantity cm3/:	
Shutoff	1.500.10	Ι		(39.8044.20)
electromagnet Volt:	12	Ι	7th speed 1/min:	
creet anagher vott:	16	Ι	Charge press. hPa:	טכו
Overlow quantity at	overflowystyce	Ī	Shutoff	12
over tow qualitity at	OVER FLOW VALVE:	Ι	electromagnet Volt:	
1st speed 1/min:	600	Ι	Del. quantity cm3/:	
Charge press. hPa:		Ι	8th speed 1/min:	(36.2042.20)
and ac bi cos. Ili d.		1	Charge press. hPa:	
			WHICH WE DITED DA HIND.	

ele	rtoff ectromagnet Volt: quantity cm3/:	12	Supply pump- pressure : -0.10.3 " difference bar: -
Maa		(22.0)26.00)	Shutoff electromagnet Volt: 12
	h. shutoff:	•	- 2nd speed 1/min: 1250 - Charge press. hPa: -
Ele	ectr. shutoff:		Supply pump- pressure :-0.50.9 #
Cha	speed 1/min: arge press. hPa:		- difference bar: - - Shutoff
	. quantity cm3/: 1000s.:		electromagnet Volt: 12
	toff ectromagnet volt:	-	Automatic starting fuel delivery:
Idl	e delivery:	•	1st speed 1/min: 520 Shutoff
Shu	speed 1/min:	4	electromagnet Volt: 12 Del. quantity cm3/: 15.0035.00 10GOS.: -
Del	ctromagnet Volt: . quantity cm3/:	7.009.00	2nd speed 1/min: 320
	10005.: I speed 1/min: itoff	(4.0012.00) - 500 -	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.0075.00
ele	ctromagnet Volt: quantity cm3/:	12 - 0.04.0	1000s.: -
	1000s.:		3rd speed 1/min: 100 Shutoff
	d-dependent star qty.dit.measur		electromagnet Volt: 12 Del. quantity cm3/: 35.0065.00 1000s.: -
Cha	speed 1/min: rge press. hPa:	-	Shutoff electromagnet:
dif	qty. cm3/ : ference 1000s.: toff	-0.51.5 " -	- Cut-in
ele	ctromagnet Volt: speed 1/min:	12 1250	min voltage : 10.0 Rated voltage : 12.0
Cha	rge press. hPa:		Mounting and assembly dimensions:
dif	ference 1000s.:	-	Designation K mm: 3.23.4
ele	ctromagnet Volt:	12	KF mm: 6.26.6 MS mm: 0.91.3
	travel dif.measu rettore anticipo		- LDA stroke mm: 5.9 - Ya mm: 31.533.5
1st	speed 1/min: rge press. hPa:	1250	- Yb mm: 50.362.6
TD-dif		-1.11.5 *	Ya = Distance between VE flange and speed-control lever in idle position :
	ctromagnet Volt:	-	Measurement point = edge of control lever on drive end
pom	press.—dif.measu pa di mandata (Fl	P): -	
1st	speed 1/min: rge press. hPa:	1250 -	 Yb = Distance between VE flange and speed-control lever in rated speed position
			Meacurement point = edge of contro

lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet

: 17.08.94 Edition

replaces

Calibrating oil : ISG-4113

Injection pump : VE6/10F2150L398-1 : 0 460 406 080

Type number Customer Part-No. :

Customer-specific information

Customer

Engine

: 2.4 SD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00

Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 000

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1500

Setting value mm: 4.40...4.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500

Setting value bar: 6.00...6.60

Full-load del. w/out charge press.:

1/min: 1250

Del. quantity cm3/

1000s.: 29.5...30.5

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion

1000s.: (3.0)

Low-idle speed regulation

1/min: 375 Speed

Del. quantity cm3/

1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0

1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 2325

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...65.00 mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1500

Inj.-qty. cm3/

difference 1000s.: -8.00..-12.0 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV) 1.Speed 1/min: 1500

TD-travel

difference mm: -0.6..-0.8 #

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min:	1000	+	Shutoff
	1.802.60	1.	*
		T	electromagnet Volt: 12
mm:	(1.502.90)	+	Del. quantity cm3/: 21.5023.50
electromagnet Volt:	12	Ţ	1000\$.: (20.3024.70)
		7	
2nd speed 1/min:		+	4th speed 1/min: 1850
TD travel mm:	4.404.80	Ŧ	Shutoff
	(3.905.30)	- 1	
	(3.70).307	T	electromagnet Volt: 12
Shutoff		+	Del. quantity cm3/: 23.2025.80
electromagnet Volt:	12	.1_	1000\$.: (21.5027.50)
3rd speed 1/min:		1	
		†	5th speed 1/min: 1250
TD travel mm:	5.105.90	+	Shutoff
	(4.806.20)	1	electromagnet Volt: 12
	(4.000.20)	T	
Shutoff		+	Del. quantity cm3/: 29.5030.50
electromagnet Volt:	12	T	10008.: (27.8032.20)
		1	
a 1		T	
Supply-pump pressure	e characteristic:	+	Shutoff
		1	electromagnet Volt: 12
Ask seed A/-im.	750	T	
1st speed 1/min:	(2P)	+	Del. quantity cm3/: 26.0029.00
Supply-pump		+	1000s.: (24.5030.50)
pressure bar:	3.804.40		
	3.004.40	T	
Shutoff		+	Mech. shutoff:
electromagnet Volt:	12	1	
		1	Flacks dust # # # # # # # # # # # # # # # # # # #
	1000	†	Electr. shutoff:
Supply-pump		+	
	6.095.60	ę	1st speed 1/min: 375
	0.070.00	Ĩ	
Shutoff		+	Charge press. hPa: -
electromagnet Volt:	12	1	Del. quantity cm3/: 0.003.00
		1	
3rd speed 1/min:	2 10U	†	1000s.: -
Supply-pump		+	Shutoff
pressure bar:	7.908.50	1	
	1.700.00	7	electromagnet volt: -
Shutoff		+	
electromagnet Volt:	12	1	Idle delivery:
ottotti dilagi ice yatti	10		Tate decivery.
- 1		†	
Overlow quantity at	overflow valve:	+	1st speed 1/min: 375
		1	Shutoff
Androperate Alexans	750	T	
1st speed 1/min:	730	+	electromagnet Volt: 12
Shutoff		+	Del. quantity cm3/: 7.009.00
electromagnet Volt:	12	1	1000s.: (4.0012.00)
etectionagnet vott.	14 70 07 10	T	
Overflow :	41.7083.40	+	2nd speed 1/min: 500
quantity cm3/10s:	(26.7098.40)	1	Shutoff
	2450		
2nd speed 1/min:	C 100	†	electromagnet Volt: 12
Shutoff		+	Del. quantity cm3/: 0.03.0
electromagnet Volt:	12	1	1000s.: -
		T	10005
	55.60139.00	+	
quantity cm3/10s:	(40.60154.00)	1	Load-dependent start of delivery:
400.1016	(40.00194.00)		
		+	<pre>Injqty.dif.measurement:</pre>
Delivery-quant. and	breakaway char.:	+	
4		1	1st speed 1/min: 1500
		T	
		+	Injqty. cm3/ : $0.03.0 * Z$
1nd speed 1/min:	2500	1	difference 1000s.: -
	2500	T	
Shutoff		+	Shutoff
electromagnet Volt:	12	+	electromagnet Volt: 12
Del. quantity cm3/:		1	and a same a same a same a same a same a same a same a same a same a same a same a same a same a sa
		T	
1000s.:		+	TD-travel dif.measurement:
2nd speed 1/min:	2275	1	correttore anticipo iniezione (SV):
	~~~		
Shutoff	40	Ť	1st speed 1/min: 1500
electromagnet Volt:	12	+	TD-travel : -0.81,8 *
Del. quantity cm3/:	14.50 24.50	T	
ACCO	17.JUEY.JU 147 ED - 9E ED	T	difference mm: -
TUOUS.:	(13.5025.50)	+	Shutoff
3rd speed 1/min:	2150	+	electromagnet Volt: 12
		a.	

SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1500 Supply pump-: -0.3...-1.1 * pressure difference bar: -Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 500 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.00...35.00 1000s.: -1/min: 300 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...75.00 1000s.: -3rd speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...65.00 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation K mm: -KF mm: -MS mm: mm: 31.5...33.5 Ya Yb mm: 51.2...62.4 Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : NIS

Edition : 19.08.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1400R539-1

Type number : 0 460 424 108

Customer Part-No. :

Customer-specific information

Customer : NISSAN

Engine : B 4.40 LKW "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil

return temp.

with thermometer : 54.00...56.00

Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 109

Opening

Pressure bar: 207.00...210.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

mm: 840 x Length

Start of delivery

Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1100 Speed

Setting value mm: 1.30...1.50

electromagnet Volt: 24

Supply-pump pressure

1/min: 1100 Speed

Setting value bar: 6.90...7.50

Shutoff

electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 69.50...70.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 5.0

1000s.: -

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/ 1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.0

1000s.: -

Full-load speed regulation

1/min: 1575 Speed

Del. quantity cm3/

1000s.: 52.00...56.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 95.00...155.00 mind 1000s.: 95.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed

1/min: 1100 mm: 1.30...1.50 mm: (0.70...2.10) TD travel

Shutoff

electromagnet Volt: 24

1/min: 1000 3rd speed

mm: 0.40...1.00 TD travel

mm: (0.00...1.50)

Shutoff

electromagnet Volt: 24 4th speed 1/min: 1300

	2.603.20	Charge press. hPa: 12	200
	(2.103.70)	Shutoff	
Shutoff	<b>†</b>	electromagnet Volt: 24	
electromagnet Volt:	24 +	Del. quantity cm3/: 73	
5th speed 1/min:			² 2.080.0)
	3.103.70	5th speed 1/min: 10	<b>30</b> 0
mm:	(2.604.20)	Shutoff	
Shutoff	1	electromagnet Volt: 24	•
electromagnet Volt:	24	Del. quantity cm3/: 73	
		10005 - 77	1.579.5)
Supply-pump pressure	characteristic:	5th speed 1/min: 84	
supply posts pressure	Tide acter iscic.	Shutoff	. <del>U</del>
1st speed 1/min:	500		
	700	electromagnet Volt: 24	
Supply-pump	/ 50 5 40	Del. quantity cm3/: 73	
	4.505.10		0.577.5)
Shutoff		7th speed 1/min: 50	XU
electromagnet Volt:	24	Shutoff	
2nd speed 1/min:	1100 +	electromagnet Volt: 24	
Supply-pump	· · · · · · · · · · · · · · · · · · ·	Del. quantity cm3/: 69	2.570.5
	6.907.50	1000s.: (6	6.573.5
Shutoff	+		
electromagnet Volt:	24	Mech. shutoff:	
3rd speed 1/min:		Mech. Abstellung:	
Supply-pump	1	riodii riodio ceang.	
	8.108.70	1st speed 1/min: 14	.nn
Shutoff	Ι	Del. quantity cm3/: 0.	
electromagnet Volt:	24	1000c . (0	1.003.00
etectionagner vott.	T		1.003.00
Overster, manufath, est	T. T. T. T. T. T. T. T. T. T. T. T. T. T	Shutoff	
Overlow quantity at	overtiow valve:	electromagnet volt: 24	<b>}</b>
4.1	TOO +		
1st speed 1/min:	500 +	Electr. shutoff:	
Shutoff	†		
electromagnet Volt:		1st speed 1/min: 35	
	41.7086.10	Del. quantity cm3/: 0.	003.00
quantity cm3/10s:	(26.7098.10)	1000s.: -	
2nd speed 1/min:	1400	Shutoff	
Shutoff	1	electromagnet volt: -	
electromagnet Vol.t:	24	etestismagnet votei	
Overflow :	55.60139.00	Idle delivery:	
quantity cm3/10s:	(40 60 154 00) I	idle delivery.	
qualities clib/103.	T	1st speed 1/min: 35	co.
Politicanicalizate and	hreaten abon . T		O O
Delivery-quant. and	breakaway than.:	Shutoff	
	Ť	electromagnet Volt: 24	
And annual Almina	4700	Del. quantity cm3/: 13	
1nd speed 1/min:	1/00 +		.0021.00
Shutoff		Dispersion cm3/: 5.	
electromagnet Voit:	24 +	1000s.: (5	
Del. quantity cm3/:		2nd speed 1/min: 43	<b>SO</b>
1000s.:		Shutoff	
2nd speed 1/min:	1525	electromagnet Volt: 24	
Shutoff	<u></u>	Del. quantity cm3/: 0.	
electromagnet Volt:	24		).003.00)
Del. quantity cm3/:		,5555 (6	
10005.:		Automatic starting fue	d delivery.
3rd speed 1/min:		Additional to Starting Tue	c decivery.
Shutoff	T	1st speed 1/min: 25	'n
	2/.	1st speed 1/min: 25	
electromagnet Volt:		Timing valve Volt: 24	
Del. quantity cm3/:		Del. quantity cm3/: 50	
	(48.060.0)	1000s.: -	
4th speed 1/min:	1400 +		

2nd speed 1/min: 130 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 95.00...155.00 1000S.: -3rd speed 1/min: 100 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 95.00...155.00
1000S.: -Shutoff electromagnet: Cut-in : 20.0 : 24.0 min voltage Rated voltage Mounting and assembly dimensions: Designation mm: 3.6...3.8 KF mm: KOT mm: 0.9...1.3 mm: 37.2...39.2 mm: 52.7...60.7 MS Ya Yb Remarks: Ya = Distance between VE flange and speed control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : PER : 19.08.94 Edition replaces : 11.06.92 Calibrating oil : ISO-4113

Injection pump : VE6/12F1300R240 : 0 460 426 084 Type number

Customer Part-No. :

Customer-specific information Customer : PERKINS

: T6.60 TRUCK Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Openina |

Pressure bar: 172.00...175.00

Perforated plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.25

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000 Charge press. hPa: 1000

Setting value mm: 0.60...1.00

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000 Charge press hPa: 1000

Setting value bar: 6.10...6.70

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 98.50...99.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 700

Del. quantity cm3/ 1090s.: 86.50...87.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 300 Del. quantity cm3/ 1000s.: 16.50...20.50

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1450 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 47.00...53.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: -mind 1000s.: 115.0 mind

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device chara	cteristic:	+	Charge-air pressure	
1at amond 1/min.	4000	†	point hPa:	
1st speed 1/min:		†		6.3
Charge press hPa: TD travel mm:	1000 0.61.9	1	Shutoff	2/
		†	electromagnet Volt:	
	(0.11.5)	†	Del. quantity cm3/:	
electromagnet Volt:		†		(91.0098.00)
2nd speed 1/min:		+	2nd speed 1/min:	
	1000	+	Charge press. hPa:	1000
	1.101.90	+	Shutoff	
	(0.802.20)	+	electromagnet Volt:	
Shutoff		+	Del. quantity cm3/:	47.0053.00
electromagnet Volt:	24	+		(44.0056.00)
3rd speed 1/min:		+	3rd speed 1/min:	
Charge press hPa:	1000	+	Charge press. hPa:	1000
	2.002.80	+	Shutoff	
	(1.703.10)	+	electromagnet Volt:	24
Shutoff		+	Del. quantity cm3/:	95.098.0
electromagnet Volt:	24	+		(93.0100.0)
		+	5th speed 1/min:	700
Supply-pump pressur	e characteristic:	+	Charge press. hPa:	1000
		+	Shutoff	
1st speed 1/min:		+	electromagnet Volt:	24
	1000	+	Del. quantity cm3/:	98.5099.50
Supply-pump		+	1000s.:	(96.00102.0)
pressure bar:	3.904.50	+	6th speed 1/min:	700
Shutoff		+	Charge press. hPa:	-
electromagnet Volt:	24	+	Shutoff	
2nd speed 1/min:	1000	+	electromagnet Volt:	24
Charge press. hPa:	1000	+	Del. quantity cm3/:	
Supply-pump		- 1		
supply purity		+	1000S.:	(84.0090.00)
	6.106.70	1	1000S.:	(84.0090.00)
	6.106.70	1		(84.0090.00)
pressure bar: Shutoff		1	Mech. shutoff:	(84.0090,00)
pressure bar: Shutoff electromagnet Volt:	24	+		(84.0090,00)
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min:	24 1300		Mech. shutoff: Mech. Abstellung:	
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa:	24		Mech. shutoff: Mech. Abstellung: 1st speed 1/min:	1300
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump	24 1300 1000		Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa:	1300
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar:	24 1300		Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/:	1300
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff	24 1300 1000 7.307.90		Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.:	1300
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar:	24 1300 1000 7.307.90	<del>*                                    </del>	Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 10005.: Shutoff	1300 - 0.003.00 (0.003.00)
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt:	24 1300 1000 7.307.90 24	<del>                                      </del>	Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.:	1300 - 0.003.00 (0.003.00)
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff	24 1300 1000 7.307.90 24	<del>}-}-}-</del>	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000s.: Shutoff electromagnet volt:	1300 - 0.003.00 (0.003.00)
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at	24 1300 1000 7.307.90 24 overflow valve:	<del>                                     </del>	Mech. shutoff: Mech. Abstellung: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 10005.: Shutoff	1300 - 0.003.00 (0.003.00)
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min:	24 1300 1000 7.307.90 24 overflow valve: 500	<del>                                      </del>	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff:	1300 - 0.003.00 (0.003.00) 24
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa:	24 1300 1000 7.307.90 24 overflow valve: 500	<del>}-}-}-}-</del>	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff: 1st speed 1/min:	1300 - 0.003.00 (0.003.00) 24
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa: Shutoff	24 1300 1000 7.307.90 24 overflow valve: 500 1000	<del>}</del>	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff:  1st speed 1/min: Charge press. hPa:	1300  0.003.00 (0.003.00) 24
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa: Shutoff electromagnet Volt:	24 1300 1000 7.307.90 24 overflow valve: 500 1000	<del>                                     </del>	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/:	1300 
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Overflow :	24 1300 1000 7.307.90 24 overflow valve: 500 1000 24 41.7083.40	╅╌ <del>╏╸╏╸╏╸╏╸╏╸╏╸╏</del> ╌╂ <del>┈╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏</del>	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.:	1300  0.003.00 (0.003.00) 24
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Overflow cm3/10s:	24 1300 1000 7.307.90 24 overflow valve: 500 1000 24 41.7083.40 (26.7098.40)	╂╌╂╌╂ <del>╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏┈╏┈╏┈╏┈╏┈╏┈╏</del> ┈╂	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff	1300 
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Overflow cm3/10s: 2nd speed 1/min:	24 1300 1000 7.307.90 24 overflow valve: 500 1000 24 41.7083.40 (26.7098.40) 1300	<del>                                      </del>	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.:	1300 
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Overflow : quantity cm3/10s: 2nd speed 1/min: Charge press. nPa:	24 1300 1000 7.307.90 24 overflow valve: 500 1000 24 41.7083.40 (26.7098.40) 1300	╇ <del>╶┩╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏</del> ╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂╌╂	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000s.: Shutoff electromagnet volt: Electr. shutoff: 1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000s.: Shutoff electromagnet volt:	1300 
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Overflow cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff Shutoff Charge press. nPa: Shutoff	24 1300 1000 7.307.90 24 overflow valve: 500 1000 24 41.7083.40 (26.7098.40) 1300 1000	<del>                                      </del>	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff	1300 
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Overflow : quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow : quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt:	24 1300 1000 7.307.90 24 overflow valve: 500 1000 24 41.7083.40 (26.7098.40) 1300 1000	<del>, , , , , , , , , , , , , , , , , , , </del>	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Idle delivery:	1300 - 0.003.00 (0.003.00) 24 300 - 0.003.00 (0.003.00)
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Overflow : quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow : quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow :	24 1300 1000 7.307.90 24 overflow valve: 500 1000 24 41.7083.40 (26.7098.40) 1300 1000 24 55.60139.00	╊╌┇╾╏╾┇ <del>╶╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏</del> ╌┇ <del>╸╏</del> ╌┇ <del>╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸</del>	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Idle delivery: 1st speed 1/min:	1300 - 0.003.00 (0.003.00) 24 300 - 0.003.00 (0.003.00)
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Overflow : quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow : quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow :	24 1300 1000 7.307.90 24 overflow valve: 500 1000 24 41.7083.40 (26.7098.40) 1300 1000	<del>                                      </del>	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Idle delivery:  1st speed 1/min: Shutoff	1300 
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Overflow cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow cm3/10s:	24 1300 1000 7.307.90 24 overflow valve: 500 1000 24 41.7083.40 (26.7098.40) 1300 1000 24 55.60139.00 (40.60154.00)	╊╌╂╌╂╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌╏╌	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Idle delivery:  1st speed 1/min: Shutoff electromagnet Volt:	1300 
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Overflow : quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow : quantity cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow :	24 1300 1000 7.307.90 24 overflow valve: 500 1000 24 41.7083.40 (26.7098.40) 1300 1000 24 55.60139.00 (40.60154.00)	<del>                                      </del>	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Idle delivery:  1st speed 1/min: Shutoff electromagnet volt: Del. quantity cm3/:	1300 
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Overflow cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow cm3/10s:	24 1300 1000 7.307.90 24 overflow valve: 500 1000 24 41.7083.40 (26.7098.40) 1300 1000 24 55.60139.00 (40.60154.00)	╅╌ <del>╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸</del>	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Idle delivery:  1st speed 1/min: Shutoff electromagnet volt: Del. quantity cm3/: 1000S.:	1300 
pressure bar: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Shutoff electromagnet Volt: Overlow quantity at 1st speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Overflow cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow cm3/10s: 2nd speed 1/min: Charge press. nPa: Shutoff electromagnet Volt: Overflow cm3/10s:	24 1300 1000 7.307.90 24 overflow valve: 500 1000 24 41.7083.40 (26.7098.40) 1300 1000 24 55.60139.00 (40.60154.00) breakaway char.:	╅╌╂╌╉ <del>╌╏╸╏╸╏╸╏╸╏╸╏╸╏</del> ╸╇ <del>╶╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸</del>	Mech. shutoff: Mech. Abstellung:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Electr. shutoff:  1st speed 1/min: Charge press. hPa: Del. quantity cm3/: 1000S.: Shutoff electromagnet volt: Idle delivery:  1st speed 1/min: Shutoff electromagnet volt: Del. quantity cm3/:	1300 

2nd speed 1/min: 400 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: -3rd speed 1/min: 350 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 2.50...12.50
1000s.: -Automatic starting fuel delivery: 1st speed 1/min: 150 Shutoff electromagnet Volt: 24 Del. quantity cm3/: ...95.0 2nd speed 1/min: 230 Shutoff electromagnet Volt: 24 Del. quantity cm3/: ...85.0 1000s.: -4th speed 1/min: 100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: ...115 Shutoff electromagnet: Cut-in : 20.0 : 24.0 min voltage Rated voltage Mounting and assembly dimensions: Designation K mm: -KF mm: KOT MS1 mm: 1.0...1.3 mm: 63 mm: 37.2...39.2 LDA stroke Ya Yb mm: 50.4...58.6 Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end